

AMERICAN AGRICULTURIST,

ADAPTED TO THE

Farm, Garden, and Household.

AGRICULTURE IS THE MOST HEALTHFUL, THE MOST USEFUL, AND THE MOST NOBLE EMPLOYMENT OF MAN—WASHINGTON.

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April.

Does, then, the green earth teem with gladness?
Has Nature dropt her robe of sadness?
Do the swains pipe; do the flocks rejoice;
The mountains echo Bacchus' voice;
The mariners their sails unloose;
The bees distil their luscious juice?
Has Spring inspired the warbling throng?
—And can't the poet make a song?

MELEAGER'S "SPRING."

The poet hardly needs an apology for his song at this gladsome season of the year. For it is a bright and cheerful time, whether it come with elastic footstep, as on the plains of Syria where Meleager sung, or with lingering tread, as on the Atlantic slope of our continent. It is none the less glad, because the sunny days come tardily, alternating with days of storm, when the chill East wind with breath of needle points, fills the air. There is a perfume of roses about these first warm days in the unconfirmed Spring, all the more enjoyable because of the sharp contrasts that precede and follow them. Flowers were not half so sweet, if they were not frail and perishing. April is the weeping sister in the fair company of the months, because her showers are so numerous and fitful. We enjoy the gleams of sunlight between, all the more for the setting of storm and cloud that encircles them. The pleasant days of April come to us, with all the freshness of novelty. The biting cold of Winter, its snow-clad hills and ice-bound streams, its sleeted forests and frozen earth, are yet fresh in memory. We feel that we hold the golden hours by the slightest tenure. All signs of fair weather fail. The ruddy sunsets do not bring dry weather on the morrow, and wind from the north is not the harbinger of clear skies. Here comes a squall out of the northwest, black, windy clouds pouring down snow and hail with a violence worthy of December. But it is soon over, and the springing blades of grass look all the greener amid the dissolving snow.

With all these drawbacks, Nature gives unmistakable evidence that "the Winter is over and gone, and that the time of the singing of birds

has come." The feathered songsters are already heard in the edge of the forest and in the orchard. The soft notes of the blue-bird have filled the morning air with melody for many weeks, and he is already looking up his Summer quarters. He has found his mate, and we understand the sprightly conversation now going on around that knot hole in the old apple tree. The woodpeckers occupied the tenement, and raised their brood there last year, but the blue-birds have the start of them now, and already the nest is lined, and will soon be filled with tiny eggs. The robins are seen in every hedge and sheltered spot, and the blackbirds have made their appearance in the edges of the swamp. They follow the plow-boy as he turns the furrow, and in company with the redbreast, devour every grub and worm that comes to the surface.

The wild geese, in long wedge-shaped flocks, are wending their way from the swamps of Florida and the Carolinas, to the coasts of Labrador and the far North, to lay their eggs and rear their broods. The ducks that thronged the bays and rivers in the Winter, have long since disappeared. The domesticated fowls also give unmistakable signs of a change of season. The poultry yard is more noisy than ever. What struttings and crowings of the cocks, what cacklings of the hens, making a sensation over new laid eggs! The geese and ducks are already busy with the labors of incubation, and will soon have their young flocks abroad upon the pond or brook.

It is yeaning time in the farm yard. Calves with sleek sides, and mouths frothy with fresh drawn milk, are seen at morning and evening running at full speed, pursued by anxious mothers. Here also are the little white lambs lying beside the fleecy ewes, pictures of innocence and comfort. There would be poetry in the scene, if we did not see the drover, or the butcher looking through the gate, and putting a price upon the heads of these innocents, tempting the farmer to sacrifice these gambols for sordid love of gold. The boys hate the sight of his red wagon, and his big whip. They have seen many a favorite calf with his bright eyes and beautiful white spots disappear in that same red wagon, and have shed tears over his untimely fate. When they get big, the butcher will do well to keep away from that farm-yard!

Now too the cheerful labors of the garden begin. Woman is out, trowel in hand, giving her personal attention to the early floral visitors. The flower border is uncovered, and the crocuses and jonquils, violets and snow drops, are seen peeping from the earth. The climbing roses are trimmed and fastened anew to the trellis. The Wistarias, honeysuckles, and other creepers are put in order. The whole border is dug over and prepared for seed-sowing. A charming sight is woman in the garden, evoking flowers from the genial soil, herself the fairest of them all. There is

said to be nothing so good for dyspepsia, as the smell of fresh earth. Provided the invalid does the stirring, we have faith in the remedy. It is also an excellent remedy for pale cheeks and weak joints. There is health in the morning air, and in the companionship of dew drops. There is often a medicinal virtue in them, that the drops administered by the faculty do not possess. Beginning with the early Spring, and gradually increasing the labor, it is quite possible for daughters delicately reared, to strengthen their bodies, and fit themselves for the responsibilities of housekeeping. There is a much older and more brilliant language than French, they need to learn. The lessons are taken at sunrise, and the dictionary is a flower border well stocked with seeds and plants. Now that the season is changed, let the fair pupils exchange skates for the trowel and garden rake, and see if something noteworthy can not be learned in the most primitive of human arts.

As for the piping mentioned by our poet, the world has undergone an entire change since his day. The swains pipe as much as ever, but the instrument is no longer a reed, and the product, music, but a small bowl of clay, with short stem, stuffed with a dry herb, and the product, a stench that would have smoked Hecate and the Furies out of their homes. There is no accounting for tastes, but we think the piping of the swains of the olden time was the more sensible of the two.

The world has undergone important changes in other respects. Commerce no longer goes creeping along the shores of inland seas, confining itself to Summer voyages, and hauling its boats on shore when the Winter storms come on. It pushes its adventurous way out into the trackless ocean, on voyages of years in length, vexes the waters of all seas, and never furls its sails but in climes where the ice rears its impassable barriers. Agriculture is no longer the puny handmaid of the living ship of the desert, and the boat trade of the Mediterranean, but the mighty feeder of modern commerce, freighting ships to all lands, and making the silks and teas of China, the coffee and spices of the Indies, the sugars and fruits of the tropics, and the furs and oils of the frozen zones, the common articles of convenience and luxury in every prosperous farmer's home. If the old Greek felt like singing with the incoming Spring, how much more should we be thankful not only for the changing seasons, but in the greater change of the farmer's lot from his time to our own!

To sit down at the beginning of the month and make a list of the various things to be attended to, greatly facilitates work. The most successful farmer we know, keeps a slip of paper constantly with him, and whenever anything occurs to his mind that he desires to remember, he at once notes it down on his memorandum. It is unnecessary to say that on his farm every thing moves forward smoothly, pleasantly, and profitably also.

Calendar of Operations for April, 1860.

[We note down sundry kinds of work to be done during the month, to call to mind the various operations to be attended to. A glance over a table like this will often suggest some piece of work that might otherwise be forgotten or neglected. Our remarks are more especially adapted to the latitudes of 35° to 45°; but will be equally applicable to points further North and South, by making due allowance for each degree of latitude, that is, earlier for the South, later for the North.]

EXPLANATIONS.—*f* indicates the first; *m* the middle; and *l* the last of the month.—Doubling the letters thus; *ff*, or *mm*, or *ll*, gives particular emphasis to the period indicated.—Two letters placed together, as *fm* or *ml*, signify that the work may be done in either or in both periods indicated; thus, work marked *fm*, indicates that it is to be attended to from the first to the middle of the month.]

N. B.—In cold northern climates, where winter still hangs on, some of the hints below, especially those referring to putting out plants, etc., will necessarily be delayed to May. Nothing is gained by working land that is still cold and saturated with water.

Farm.

During this month, active operations fairly commence. Fencing, draining, manuring, plowing and sowing, and other work require immediate attention. Every day lost now, will count two before the Summer is over, in extra work to be done hurriedly and out of season, and may be severely felt in lighter returns at harvest.

In soil culture especially, a liberal policy pays best. It has been proved a thousand times that fifty acres properly drained and plowed, abundantly manured, not stinted in seeding, and thoroughly worked throughout the season, will fill a larger purse at the year's end, than twice that amount carelessly prepared, sparingly enriched, stingily seeded, and half tilled, from mistaken economy in employment of help and other indispensable outlay. Let the rule be, *Do well, what is to be done*, and "well done" will ultimately be written all over the fields, in the golden letters of a full harvest, and in lines of satisfaction on the face of the successful cultivator.

Bees should receive attention to prepare them for their Summer's work, so freely and cheerfully performed. Very full directions on the Spring treatment of bees were given in the "Apiary" last month; and under the same head in this paper.

Buildings—Clear out all accumulations of rubbish from barns and sheds. Allow no fermenting manures to rot the sills or boarding. Keep in order, and paint where needed. Cleanse and paint, or whitewash wood-houses, poultry houses, and other out-buildings where vermin breed readily. A scratch in time saves nine. A good whitewash for out-doors is made by adding 5 to 7 ounces of tallow or other grease to each peck of lime dissolved, putting the grease upon the slaking lime, and stirring it in thoroughly while the lime is still hot or warm.

Cabbages—Set *ff*, *m*, in well manured and finely pulverized soil, 2½ feet apart. Watch carefully for and destroy the cut worm, resetting any plants eaten off.

Calves—Carefully select from the best for raising, although the butcher may offer tempting prices. Teach them to drink from the start. Feed them with plenty of new milk for the first few weeks, after which mix in skim-milk and a little oatmeal or shorts, increasing the quantity daily, until they will readily eat only meal and water. To cure scours, mix wheat flour with the feed.

Carrots are of high value for feeding cattle and horses, and yield largely. Plow or dig deep, manure heavily, reduce the soil to a fine tilth and sow, *ll*, in drills sixteen inches apart. Put in seed as soon as ground is prepared, before it becomes lumpy.

Cattle in this latitude will require feeding at the barn most of this month. Too early turning out, is injurious to the pastures; and the animals themselves are checked in their growth, as the young grass though insufficient for their wants, spoils their appetite for hay. Keep them from the mowing grounds; all the growth *there*, is needed for the hay crops. Breeding animals need especial care. As their time approaches, they should be separated from the rest of the herd. Give working oxen a daily feed of potatoes or other roots together with grain; card and brush them frequently.

Cellars—Cleanse thoroughly from decayed vegetables and litter; whitewash the walls; remove boxes, barrels, loose boards, etc., not in use. Lime sprinkled where vegetables have decayed, will destroy impurities that might taint the air and injure the flavor of milk and butter if kept in the cellar. Give free ventilation.

Clover may still be sown on winter grain, *ff*. Use not less than six quarts per acre, and in many instances a peck would be profitable, especially where it is intended to plow in green for manure. Sow upon a light snow, so that the seed may be carried down into the soil. This is the practice of many good farmers. When sown on snow, it is easy to see whether the seed falls evenly. Our

own experience is decidedly in favor of sowing clover on wheat or rye towards the end of the freezing season. A still morning is chosen when the ground is frozen an inch or two in depth, leaving it full of interstices or cracks, into which the seed rolls, and is covered on thawing. When sown too early, the young germs may be killed by frost. When used with Spring grain, sow and work in with a light brush harrow after the grain is finished.

Corn—If old roots were not harrowed out last month, attend to them *ff*. Procure seed and test it, *ff*, if not already done; provide an extra supply to replant if the first fails. Manure, and when dry enough plow grounds for planting next month. If in heavy sod, turn it well over, then spread the manure, and before planting, cross-plow very lightly, and harrow well, to mix the top-dressing with the soil but not to disturb the sods below. Their fermenting and decay will warm the surface and enrich the deeper layer, and prepare it for the future wants of the roots.

Cranberries—For particular directions see page 115.

Door Yards—Clean up all rubbish, chip-dirt, ash-heaps, and other litter, and remove them to the compost heap. Make convenient raised walks of brick, plank, or coal cinders. Place foot scrapers near the outer gate, to prevent accumulation of dirt around the door step.

Draining—Nothing is more important for half the soils in the country. Crops on well-drained lands are almost independent of rains and drouths. With blind drains deep below the surface, the surplus water of a wet season runs off; and the roots of plants go so far down into a well-drained soil, that they bring up sap in the driest season from a point below the sun's parching effects. Deeply drained soils are warmer, and can be worked much earlier in the Spring. Drain all the land you can every year, and especially this year. Do it thoroughly, for all time, as far as you go. Put the drains three, or better, four feet below the surface, and near enough together to thoroughly remove water from the space between the drains. Dig trial holes four feet deep, and wherever you find water standing in them three days after a rain, that soil will pay for drainage. Stones or tiles are best in all cases. Where tiles are accessible, the less digging required will usually pay for the extra cost over stones near at hand. Where stones are in excess, the best way to get rid of them is to bury them in the form of drains. A mass of stones thrown into a drain answers a tolerable purpose for a time at least, but it is always better to lay them so that there shall be a continuous passage for water. Leave no stones within 18 inches of the surface to be disturbed by the plow. You will surely have the plow and subsoil plow down to that depth in less than ten years—if you continue to read the *Agriculturist*. . . . Any form of tile may be used, but the round tubes are cheaper, and are quite as good as the horse-shoe tiles with soles. In laying the tiles be sure to have them on a hard smooth bottom, and the ends exactly meeting. In a loose muck or bog soil, put down thin rough boards or slabs of some durable timber to lay the tiles upon. The boards will last many years, and when they finally rot, the soil around the tiles will have become so compact as to keep them in their places. Run drains down hills, and not around their sides. This subject is fully discussed in Vol. XVI, at pages 54, 97, 101, 125 and 149.

Fences—Have as few as the farm will admit of, and keep them in the best repair. Where stones are plenty, use them for walls. In wet locations, make ditches along the fence lines to prevent heaving by frost. Make gates for all entrances frequently used. Sods from salt marshes may be used to good advantage for fencing. See directions for building on page 110. Plant hedges, *f*, *m*, *l*, of Osage Orange, Buckthorn or Honey Locust. Read article headed "Vicious Cattle" on page 110.

Feet—To avoid colds, chills, and agues, keep the feet dry and warm. Leave the upper leather without oil or grease, except an inch or so above the soles. Grease this part and the soles well. This keeps out moisture from the ground, but allows the perspiration to escape from above. The feet are thus kept dry and warm. Good, thick, large "cow-hides" conduce to health and comfort—let the Chinese, and fashionable people, and fools, wear the small and thin shoes. . . . Changing the socks at noon, and especially when work is over, takes but little time, and conduces greatly to comfort and health.

Grain Fields—Keep all stock from feeding or trampling upon Winter grain. Open drain furrows that have been filled during Winter. Re-sow bare spots with Spring varieties.

Hedge rows and bushy clumps near fences, or scattered about the fields, disfigure the farm, occupy valuable space, and shelter vermin; root them out, and sow with grass seed if not wanted to plow.

Hired Help—Plenty of good help is cheap at any price—and poor help is dear at any price. You have your men, and women too, to board any way, and to wear out and break things generally. Two or three dollars more per month for good help is well made up. The cheapest

farm hand we ever had, we paid \$20 a month and board. He was worth two twelve-dollar men in well-directed efficient labor, worth another one in the care he took of implements and animals, and in keeping an eye to things generally; and it cost no more to board him than one poor laborer.

Horses, if properly cared for, need not be reduced by Spring work. Work them gradually at first, until hardened to it, and give more grain, with carrots to keep up their appetite. Grooming them thoroughly every night, brushing and rubbing down well, will prevent or alleviate soreness of muscles. A loose layer of leather under the collar will prevent galls. Breeding mares require moderate exercise daily, and roomy stalls when near foaling.

Lime is useful on cold sour land, and wherever there is undecaying vegetable matter in the soil. 15 to 40 or 50 bushels to the acre may be used, according to the degree of coldness. On light land, 10 to 20 bushels is an abundance for one application; too much lime speedily destroys the entire organic matter, making it what is commonly, though not correctly called "lime sick." Sow the freshly slaked lime upon the surface and harrow it in, at almost any time before or after seeding, but not after the seeds begin to sprout.

Lucerne—In dry calcareous (limestone) soils, and on deep sandy loam, this plant may be valuable for soiling. Sow on well prepared ground, *m*, *l*.

Manure stored and prepared by composting, is now wanted in the fields. It will be much more beneficial to the growing crops if finely divided and well mixed with the soil. Working the heap over, and adding muck, lime and plaster, will thus improve it. Avoid purchasing fertilizers until every resource for manufacture upon the premises is exhausted. Beware of high sounding names and spreading advertisements.

Meadows—Go over with a "maul" and beat up the scattering lumps of manure dropped by the cattle. Gather all loose stones, and dig out, blast, or sink large ones, working them into fences. Top dress bare spots liberally with yard manure and sow grass seed. It is also well to go over such places with a heavy harrow, scatter seed and roll smooth.

Oats—Sow, *m*, to *l*, on ground used for hoed crops last year. Manure is better applied to the previous crop. If used very freely in Spring on good ground, the crop runs to straw, and is likely to lodge.

Onions if properly cared for are very profitable. Make the seed bed deep, rich, mellow, and free from stones, and lumps. Sow, *m*, *l*, in drills twelve inches apart, and cover lightly.

Plaster may be tried upon various crops, using from 200 to 500 lbs. to the acre, where it does not cost over \$7 to \$10 per ton. There is no guide for its use, but a trial, for, while on many soils it is very efficacious, on some others it is of little benefit, and no certain reason can be assigned. Sow it broadcast over wheat fields, especially where clover seed is put on. Sow it also on ground for Spring grains and other crops, and harrow it in before seeding, or with the seed. It so often proves valuable, that it is worth trying where this has not been already done thoroughly. To test plaster, pour vinegar, or some stronger acid upon a little of it; if it ferments greatly, it contains considerable carbonate of lime, and is not pure plaster.

Plowing should not be entrusted to careless hands. Deepen the soil gradually, say an inch at each plowing. Where the center of a field has been hollowed, and the sides thrown into a ridge by plowing around the field year after year, remedy this by back furrowing until it is properly leveled. Read article on page 107.

Potatoes—Early varieties are most valuable where a good market is easily accessible. Plant, *m*, *l*, on rich mellow soil. Use those of medium size for seed, planting in rows 3 feet apart, two eyes to a piece, dropped one foot apart in the rows. Try an experimental plot, varying the amount and kind of seed used.

Poultry are now singing their Spring *lays*. Supply them with plenty of lime to work up into egg shells, and with grain and refuse meat to fill the shells with. Set the hens, *ff*, for early chickens. Supply clean straw and fresh whitewashed boxes for nests for setting hens. Tobacco stalks and leaves mixed with the straw are recommended to expel vermin. Feed the chickens with corn cracked fine and boiled, which is preferable to meal; increasing the size as they grow older. If vermin infest the hens, grease them slightly under the wings when they leave the nest.

Rye—Sow Spring variety, *m*, *l*, using two bushels of seed per acre, on clover sod, or following a hoed crop the previous year, which is preferable if the land is in good condition.

Sheep—Keep separate from cattle. Give warm shelter at night to breeding ewes, now dropping their lambs. If any refuse to own their lambs, shot them by themselves.

with their young until they yield. Feed puny lambs with fresh cow's milk until they can draw nourishment for themselves. Give plenty of water, and salt once a week.

Sorghum—Prepare ground as for corn, 11.

Swine—Keep watch over breeding sows, that they do not devour their young. A little animal food, and also ashes and charcoal are serviceable to allay their craving appetites. Keep them in warm pens, with not too much litter, that the pigs may not be overlaid and smothered.

Timothy—Sow, 11, with Spring grain, and to re-seed meadows, as directed above.

Tools of every kind should be in readiness, 11. Examine and purchase good labor saving implements; on a large farm the expense of two or three hands may often be saved every year by a single machine. Secure such as you know have been tried and proved valuable.

Trees by the road-sides and along lanes, especially fruit trees, are ornamental, and are permanent improvements to a place. Waste rocky spots may be profitably devoted to growing timber, especially yellow locust. Have an abundance for fruit and shelter in the immediate vicinity of the house.

Wheat and Rye fields pay for attention now. Remember that the real winter-killing is done in Spring. The leaves may be destroyed in Winter, and the roots start anew; it is the alternate freezing and thawing of the soil around the roots that destroys them. The more wet the soil, the greater will be the expansions and contractions, and the greater the injury. Therefore, clean out all open and blind ditches at once, so that the water will run off. It is often advisable to run the plow through the dead furrows to open them in the latter part of Winter. A heavy single horse must be used for this, to avoid trampling the wheat outside the furrows. On spots where the Winter wheat is surely dead, scatter on Spring wheat; the ground is all prepared for a crop and should not be left idle, or what may be worse, a nest for weeds. The extra seed may be hoed in on small plots, or dragged in on larger ones. It will often suffice to simply sow it on the ground when frozen, as directed for clover.

Orchard and Nursery.

Nobody expects wheat, corn, or potatoes, to produce well, without proper attention from the first planting of the seed to the final harvest; but few comparatively, except practiced nurserymen, perceive the necessity of like care in tree culture. The work is called finished when the roots are put in the ground; no further pains are taken to cultivate, to shelter, to prune, to destroy insects, and very little trouble is experienced in gathering fruit—it does not grow—that part of the work was effectually finished, by careless treatment at first, and continued neglect. If an orchard, or even a few shade trees are needed, (they are, on most homesteads,) attend to it early this month. Procure them from reliable nurserymen, and if practicable attend personally to the selection and transplanting. Old orchards will in many cases receive a new lease of life, and be encouraged to good works, by liberally manuring with well rotted compost, plowing and cultivating with potatoes or other hoed crops, or better still, by Summer fallowing the ground, leaving all the manure for the trees. See page 116.

The Nurseryman's success depends very largely upon promptness and accuracy in filling orders. Many are deterred from planting trees by the disappointments experienced through delays, and mistakes in filling their orders. Ample preparation should be made for the opening trade, by heeling in sufficient quantities of the principal varieties, properly labeled, in a convenient place for packing. Attention to sales, transplanting young stock, grafting, and cultivating among the rows, will fully occupy the time this month.

Apple trees succeed best when planted early, so as to get a good start before the Summer drouths set in. Set these and other fruit trees as soon as the ground is dry enough to work well. Let the ground be deeply and thoroughly plowed for an orchard. Subsoiling will greatly benefit it. Make the soil as rich as for a good yield of corn. Do not be ambitious to secure large trees for transplanting. They receive a greater check in moving. If the soil be sufficiently light, it will only be necessary to dig holes a trifle larger than the roots, which should always be spread out in their natural position. Avoid setting in too deep holes, especially if the subsoil is heavy or clayey. (See page 116.) Expose the roots to as little sun and wind as possible while transplanting. Graft, 11, m, any trees needing it. Full directions for performing the operation have previously been given. Sow, m, seeds kept in boxes over Winter.

Budded Trees—Those which were budded last season, but not cut back, should now be cut off to within two inches of the fresh cion or bud.

Cherries—Plant, 11, m, any pits kept in boxes of earth. Set and graft as treated under apple trees. As they begin to grow earlier than apple trees, the grafts should be put in, 11, or even the latter part of March.

Dwarf Pear and other Trees—A few selected sorts of pears, known to succeed well upon the quince, may properly be set in their dwarfed state in the kitchen and fruit garden. They have a good effect when planted on the borders or along walks, where they frequently bear good crops. But for the main reliance, standards will give the best results.

Evergreens—These can be transplanted now, but we have had the best success with those planted out just when new branches begin to start out, say about the middle of May, in this latitude. Nursery grown evergreens carefully transplanted at that time, are about as sure to live as deciduous trees.

Flowering Shrubs—These should be transplanted early, especially if to bloom the coming season. See under Flower Garden.

Grafting—The proper season for grafting is now at hand. How many thrifty growing and full bearing trees now produce only very common fruit, which can be made to yield equally good crops of the better sorts, in a brief space of time, with very little expense or labor. Begin with the bearing tree, by grafting about one third of the most upright branches this Spring; then graft another third next Spring. The third year will complete the change, at which time the first grafts will already be in bearing. Cherry cions should be put in first, say from the first to middle of this month, while apples and pears may be grafted during the entire month. If any cions are to be cut, take them off at once. Remove one of the two cions put in a single branch last season, if both are likely to grow large.

Grape Vines—Put in cuttings and plant roots, 11, m. Avoid pruning or marring the vines at this season as they "bleed" badly. Bend down and cover branches with earth when you desire to form rooted layers for planting. See articles upon layering, on page 184, Vol. XVI, and upon pot culture of grapes on page 52, (Feb. No.), of this volume.

Head back the pear and apple trees which are growing too uprightly. This will induce side shoots and make stocky and much more valuable trees. One of them will be worth more than a half dozen "whip stocks" which require stakes to hold them up. An upright branch may sometimes be bent and tied down with advantage, as shown on page 53 (Feb. No.).

Hedge Plants—Sow, 11, m, the Osage Orange, honey locust, and other hedge plant seeds kept in boxes during the Winter. Set in convenient working rows, and cut back those plants one year old, unless they are sold or permanently planted out at this age. This cutting back is of great importance to form a thick bushy plant branching down to the very ground.

Inarching, or Grafting by Approach—This may be done at any time during the month. See illustration and description of this process, on page 184, of Vol. XVI. Provide for future inarching by planting stocks around the tree or shrub to be propagated from in this way. The process is an interesting as well as useful one.

Insects—Eggs of the caterpillar are frequently seen at this season in a compact cluster, firmly glued to the twigs of apple trees. Cut or rub them off and burn them. Destroy any cocoons in the forks or under the loose bark of trees. Search out and kill any borers allowed to spend the Winter in apple or peach trees. A preventive will be given in June, at which time it is to be applied. Wash off scale, or bark louse, with a strong soap suds, or better still a solution of one pound of potash to six quarts of water. The eggs are now under the old scales and will be crushed, or so exposed as not to hatch, if their natural covering be removed by washing or scraping.

Laurel (Kalmia latifolia)—Sow seeds, 11, m, in a finely pulverized, loamy soil, to which a large amount of muck has been added. In the absence of muck, cover the seed with three fourths inch fine mold (black earth) scraped from the woods. A spot partially shaded is desirable, as the young plants will not bear a hot sun constantly shining upon them. Where the trees are found in the forest, transplant, 11, m, retaining earth about the roots where practicable.

Manure should be used liberally, as well upon the ground now being planted in an orchard, as about the roots of bearing trees, in the nursery rows and on land for the first time taken for nursery purposes. Manure pays as well in tree growing and fruit bearing as elsewhere. Lime, ashes, and decomposed muck are good fertilizers both in orchard and nursery.

Nuts, acorns, peach or cherry pits, and other hard shelled fruit or forest tree seeds, will soon be sprouting. If in boxes of earth, plant in prepared drills, 11, m.

Orchards—Plant a new one, 11, m, selecting kinds of fruit. But while the new one is growing, do not neglect the old. Cut away dead branches, manure the ground and plow it lightly, harrowing it once a week during the Summer. A bushel of leached ashes, or a peck of unleached, or of shell lime scattered under each full grown tree will often renew both its growth and fruitfulness.

Pack in a thorough manner any trees that are to be sent to a distance. See illustration of a packed bundle, with directions for the operation on page 117, Vol. XVII.

Peach Trees—Plant out, 11, m, selecting trees but one year from the bud. They may be set between the newly planted apple or pear trees. Being of quick growth, and short lived, the peach trees will arrive at maturity and gradually decay before the slower growing apple needs the space. Cut back the leading shoots of bearing trees, taking off one third of the last year's growth.

Planting out and transplanting generally both of fruit and shade trees, excepting evergreens, should be done in early Spring. Make preparations for, and begin the work as soon as the ground is dry enough to dig.

Plow out the nursery rows, 11, m, turning the furrows from the trees this time, if the last plowing was towards the trees. All grounds to be planted to an orchard or nursery, should also be thoroughly and deeply plowed, and also subsoiled. It is well to keep the newly planted orchard under the plow for a few years after planting at least.

Plum Trees—Set out, 11, m, if possible, so as to make a poultry yard of the plum orchard. Fowls are great destroyers of curculio and other insects. Cut out any black warts found upon the branches. Plant seeds, 11.

Pruning—Spring is not the best time to remove large branches. The ascending sap escapes at the wound, and, running down, discolors and poisons the bark. Nor does the new growth close over it readily. Where it is really necessary to remove such branches, coat the wound with grafting wax, or better still, gum shellac dissolved in alcohol to the consistence of cream. We prefer leaving large branches until there is no more free sap, and when the new wood has already begun to form. The wound will then heal quickly and firmly, leaving sound, healthy wood beneath. Better prune at this season only with the pruning knife, for removing straggling twigs and suckers.

Pear Trees—Plant, 11, m, as directed under apple trees. As pears are an ever welcome fruit, see if a few more trees cannot advantageously be set about the buildings, along the lanes, or in the orchard. There is frequently a little space near a barn, shed, or hovel, where some shade tree will be a benefit, at least to the looks—this may appropriately be a fruit tree combining profit with beauty.

Quinces—Plant 11, m, along border fences, or in orchards. Select the orange variety as a well approved sort.

Seeds of any kind, whether saved dry or put in boxes of earth, should be planted 11. Handle them carefully, as some may be sprouted.

Stools, that is those shrubs kept for propagating, should now be dug about, and the last season's growth layered. Remove the layers of last year if well rooted.

Stocks, or seedling cherry, pear, apple, etc., trees, should be planted, 11, m, so as to get an early start. They will thus be in a better condition to bud next summer.

Spade early among trees too thickly planted to admit the plow. A fork spade is better than the shovel form.

Trench ground for planting a nursery upon, if it can be done. It can not be done when covered with trees.

Kitchen and Fruit Garden.

"A fat kitchen maketh a lean Will," said Poor Richard's Almanac; but however true that might be in his day, modern improvements in gardening and fruit culture both in the articles produced, and the manner of raising them, now make it possible to live both luxuriously and cheaply. With Asparagus and Rhubarb, peas and strawberries, egg plants and blackberries, tomatoes and melons, and the profusion of vegetables and fruit now obtainable, the humblest laborer may rejoice in many a dish "fit for a king"—which is as it should be, since all are sovereigns in America. Unfortunately too many consider the garden a mere secondary appendage to the premises, treat it indifferently, and are repaid with equal indifference by the garden plot. Nature is bounteous but she repents a slight. Let the cultivator in planning his operations count the garden work among the first in importance, begin the season with due attention, and follow it up faithfully, and it will gladden his table, cheer his wife, increase home comforts, and not impoverish his purse.

Make the soil deep, mellow and rich, by draining, manuring and forking over. Sow seeds as soon as the ground is warmed, and danger from frost is over. For early vegetables use the hot-bed. In its absence, tender plants may be protected and forwarded by a pane of glass laid

upon four bricks placed together around the hill, which should be taken off daily when not too cold to give air.

Apricot—Trees succeed best near a wall or fence, with a western exposure. A few may be planted in large gardens partly devoted to fruit.

Anise is often useful medicinally, sow, m, l, in light dry soil.

Artichokes—Remove covering, and divide and reset roots, m, l, in hills three feet apart each way, in richly manured soil. Sow seed, f, m, two inches deep, in drills eighteen inches apart.

Asparagus—Sow seed, ff, in drills an inch deep, twelve inches apart. For family use, it is easier to raise from roots grown from seed by the nurserymen or seedsmen. Trench the ground deeply, and make it very rich with horse manure. Set the plants with the crown two inches below the surface, in rows one foot apart. A bed six feet wide by twenty long, will supply a family of the average number. See full chapter on page 50, February number.

Basil—Used for seasoning soups and sauces—sow, l, on the edge of beds; thin to six inches apart.

Bean poles and brush for peas. Procure a full supply and sharpen ready for use.

Beets—The Long Blood and Turnip Rooted varieties are generally preferred. For the first or early crop, sow as soon as frost is out of the ground, on deep, rich soil, in drills half an inch deep, eighteen inches apart. For use in Winter, sow late in May.

Blackberries—The New-Rochelle heads the list of cultivated varieties. Set out, ff, m, on light soil enriched with leaf mold, chip dirt, and a little yard manure, in rows eight feet apart, and six feet distant in the row. Head back straggling branches on old canes, if not done last Fall, cut down to six feet high and secure them to stakes or wires running lengthwise the rows. This is preferable, as giving more exposure to light and air. If plants are not accessible, sow seed, f, m, in drills 15 inches apart, and cover lightly. These well cultivated this season, will give plants for next Spring.

Borecole and Broccoli—Sow, ll, in rich soil, broadcast on the surface, and rake in lightly. Water occasionally if dry. They will be ready to transplant like cabbages in June or July.

Cabbage—Early York for Summer use, and Drumhead for Fall and Winter, are favorite sorts. Transplant from hot-beds to rich ground, m, l, if the weather is warm and settled. Sow seed, l, in open, mellow ground for late crop, and rake in lightly.

Carrots—See directions under this head in Calendar of the Farm.

Cauliflower—Sow and cultivate the same as cabbage.

Celery—Sow, l, on dry, rich soil, on a warm border, half an inch deep in drills one foot apart.

Chives are prized by many for an early salad and for flavoring soups. Set bulbs, m, l, on edges of beds, six inches apart, two inches deep.

Cold Frames—Give plenty of air, and remove hardy plants to open grounds, m, l. Put in seeds for future transplantings.

Cucumbers—Plant seeds in small squares of turf, ff. Keep them in the hot-bed, or in a pan in the house until May, when they can be transplanted without disturbing the roots. Plant in open ground, ll, if sufficiently warm, in hills of rich sandy soil raised six inches above the surface, and six feet apart each way. Put in plenty of seeds, planting in each hill several times at intervals of a few days. The bugs will attack the tender and younger plants, and leave the more vigorous unmolested. They can be thinned after the insects have finished taking toll.

Currants—Plant cuttings and rooted bushes of the Red and White Dutch, Cherry, Versailles, White Grape or other improved varieties, f, m. Cut out the eyes from the part of the slip to go below the surface, set it six inches deep, leaving four or five inches above the surface. Set the rows on the borders of paths, or where they can be hoed around.

Drain as directed under Farm.

Egg Plants—Sow seed, ll. In this latitude it is better to start these in the hot-bed in March, and transplant in May.

Fences—Repair and paint as needed. Keep poultry from flying over, as directed last month.

Figs—Remove covering, f, m. Plant layers prepared the previous year, m, l. Put in cuttings, f, m.

Fruit Trees—It is better to devote a separate enclosure to these. Where this is impracticable, a few may be planted around the border of the garden, and dwarfed varieties introduced along the main walks. Set them out as soon as the ground can be worked.

Garlic—Plant, m, l, two inches deep, in drills one foot apart, thinning out to four inches.

Grapes—A neat arbor covered with vines, is a great addition to the garden, and if well cared for, will please every taste. Plant vines and cuttings, f, m, as described on page 113. Of the new varieties, the Delaware, Diana, Concord and Hartford Prolific are favorites. Remove covering from those protected during Winter, and confine to arbors, stakes, trellises, etc. It is now too late for Spring pruning.

Herbs—Set out or sow seeds of hyssop, thyme, rue, sage, savory, etc., on borders of beds, f, m.

Hops—A few vines trained along the fence, or on poles in vacant corners, will give a supply for family use. Enrich the ground well, and plant roots, f, m.

Hot-Beds—Raise the sashes every day to harden the plants, and give plenty of water. New beds can still be made and sown, ff. Many in this latitude prefer to do this in the beginning of April. Full directions for making are given in Vol. XVIII, page 83 (March No.). Read also article "Even a Boy can make a Hot-Bed," on page 114 this No.

Horse Radish cultivated with a little care, produces superior roots. Trench deeply as for other roots, set the crowns two inches below the surface, in rows one foot apart and nine inches distant in the row. If pieces of roots are used, bury them fifteen inches deep.

Kohl Rabi is becoming a favorite dish. It combines the properties of the cabbage and the turnip, and by many is preferred to either, often succeeding where the turnip will not. Sow, m, l, in shallow drills, nine inches apart, for future transplanting.

Leeks—Sow, f, m, l, in very rich soil, in drills half an inch deep, and six inches apart. Thin them to an inch apart, for transplanting next month.

Lettuce—Sow as soon as the ground can be worked, in deep, rich, sandy loam. Make the drills nine inches apart, and cover very slightly. A few rows for first use may be put between rows of beets, onions, etc. Plant out from hot-beds, ll.

Manure for the garden should be well rotted and fully mixed with the soil. A compost of poultry droppings and chip dirt makes a powerful fertilizer. We like bone sawings, which can be sown broadcast or drilled in directly with the seed. It has given us good returns from our grounds for years. Use all manures with a liberal hand.

Melons—Follow directions given for Cucumbers above.

Mushroom Beds—Make, f, m, l. Full directions are given on page 262, of Vol XVI (Nov. No.). They are too lengthy for repetition here.

Mustard—Sow at any time after the ground is open and at intervals for a succession.

Nasturtiums—Sow, m, l, in drills an inch deep beside a fence or trellis work. They will run from ten to fifteen feet, and are very ornamental, besides furnishing an excellent pickle.

Okra from which gumbo soup is made, is becoming quite popular. Sow, ll, in shallow drills two feet apart, and protect from frost.

Onions—Follow directions given under Farm.

Parsley—Cultivate the curled variety. Sow, f, m, l, in drills half an inch deep, on the border of vegetable beds, for which it makes a neat edging.

Parsneps delight to go downward in rich, deep, mellow soil; the beds should be worked at least twenty inches below the surface. Sow, f, m, l, one half inch deep, in drills fourteen inches apart.

Peas—Sow the Daniel O'Rourke for very early. The Prince Albert follows in time of maturing, and the Champion of England and Napoleon ripen later. The Champion is the best for a general crop. Sow, f, m, l, or at different periods to secure succession. The late sown are less infested by the pea weevil. Full directions are given on page 117.

Pepper—The Bell or Sweet is preferable for pickles. Sow, f, m, half an inch deep in the hot-bed, or in a box in the house, to transplant in May.

Potatoes—To secure early, follow directions given on page 78 (March No.).

Pumpkins should not be grown in the same enclosure with squashes, melons, and other species of this family. Give them a clear space in the corn or potato field, or scatter seeds among the hills when planting.

Radishes—Sow in light sandy soil, ff, m, l, at intervals of a week, to have them in succession. Room will be saved by putting them in the rows of beets and in the spaces around vines—they will be out of the way before injuring other plants.

Raspberries—The Fastolf, Hudson River Antwerp, Brinkley's Orange, or other choice cultivated sorts are worthy a place in every garden. Even the common Black-cap is greatly improved by care, and much easier to gather than when growing wild in the fields. Set out new roots in rows four feet apart one way, and three the

other. Uncover buried canes, f, m. Fork in top dressing of stable manure. Cut back straggling growth, and tie to stakes or trellises as directed for blackberries.

Rhubarb—This vegetable has rapidly grown into favor during ten years past, and improved varieties have supplanted the small, tough, and acid sorts. For sauce or for tarts and pies it is highly prized, while some persons make quite an account of it for manufacturing into wine. It is one of the earliest Spring products of the garden. Uncover protected roots, ff, and fork in manure plentifully around them. Divide and re-set large roots for new plants, ff. Cultivate the Linnaeus variety. A dozen good plants will supply a good sized family.

Salsafy or Vegetable Oyster—Sow, m, l, in drills half an inch deep, ten inches apart, and cultivate the same as directed for carrots. Dig and use the roots left in the ground over winter, leaving some of the best for seed.

Sea Kale is much prized by many to be eaten like asparagus in the Spring. Sow seed, f, m, thinly in drills an inch deep, and a foot apart, to secure crowns for transplanting next Spring. Set roots two inches below the surface, two feet apart, in well manured sandy soil, well dressed with salt, worked eighteen inches deep.

Seeds—Procure an abundant supply and test them before sowing. Place a few on cotton in a glass of water, and set them in a warm place. If good, they will sprout in a few days. To secure ready growth, some gardeners enclose parcels of seeds in bits of cloth with a paper containing the name, and bury them two inches below the surface, a week or more before wanted for sowing. They will swell and perhaps sprout, and thus be ready to start at once. In covering seeds sown in drills, do not rake them in. It rattles the lumps into the openings, giving insufficient covering. It is better to pass the back of the rake along the drill, and best of all, to sift in fine earth by hand.

Spinach—Uncover that protected in Winter, ff, and market or use as wanted. Sow for successive crops, f, m, l, in drills, a quarter of an inch deep, thinning to nine inches apart.

Squashes—The Hubbard and Boston Marrow head the list of tried varieties for excellence for Fall and Winter use. Plant l, in raised hills eight feet apart, at a distance from melons or cucumbers, and cultivate in the same manner. Plant summer or bush varieties at the same time in hills four feet apart.

Strawberries—A full article may be found on page 117, which read, and make beds, ff, m, which is the best time to set new plots. Select vigorous plants from last year's runners. Thin old beds by pulling out plants marked last season as barren.

Tomatoes—Plants taken from the hot-bed, ll, and properly manured, will bring fruit much earlier. They may be easily grown in a pot in the house. Sow seed in open ground, f, m, in a sheltered warm corner, and protect from cold with a little straw. Plants will be ready for setting out in May.

Sweet Potatoes—For complete directions see page 111.

Tools—Work in the garden is very much expedited by the use of proper tools. Examine catalogues and procure improved. Those essential to a garden are a spade (the fork spade is best)—hoes of different sizes, shovel, rake, reel and line, transplanting trowel, and watering pot. A blade spade and an iron bar will also be convenient. After using an implement, free it from dirt, wipe it dry, and put it in its place.

Trench as much of the ground as practicable before planting. The manner of doing this is described in the article on raising Strawberries on page 117.

Turnips—Sow early varieties, m, l, for Summer use, one fourth of an inch deep, in drills ten inches apart. For the main crop, June and July are appropriate months.

Winter Cherry—This has become a great favorite for preserves, pickles and pies. Sow the seeds in a hot-bed, ff, or in a box in the house, for transplanting next month. They will succeed well put in the open ground, m, l. Sow in drills one fourth inch deep, eight inches apart, and transplant when three inches high, to hills two and a half feet distant each way.

Flower Garden and Lawn.

While the Farm and the Vegetable garden must receive attention to supply the wants of the table; these can not afford all that is needed for enjoyment. The rural resident should, for his own and his family's sake, make his dwelling attractive. Costly architectural ornament is not necessary for this. The beauty of Nature is far beyond that of art. With but little expense, and the aid of wife and daughters, the humblest cottage grounds may rejoice in a wealth of vines, and bloom with flowers that shall be the envy of more wealthy but less tasteful neighbors. The smiles of Spring may be perpetuated in leaf,

and tendril, and flower, making the heart glad, and ministering continually to the gentler and better feelings, and at the same time bringing roses of health to the cheeks now pale with the confinement and monotony of housework. Make a flower garden this year if never before.

Making or renewing gravel walks, setting out deciduous trees, seeding lawns, preparing borders, transplanting flower roots, and sowing annuals, will give ample employment in this department.

Annuals—The hardier sorts may be sown, m, ll. Among the more common but attractive sorts are asters, balsams, candytuft, coreopsis, clarkia, coxcomb, escholtzia, hibiscus, larkspur, lavatera, marygold, mignonette, nasturtium, phlox, portulacca, scabiosa, etc. Many of these are on our list for free distribution, see page 122. They are described on pages 3, 4, (January No.). Sow them in patches or singly, according to their habit of growth. With most of them it is important to cover the seed very lightly. In all cases the soil should be finely pulverized, and worked to a good depth.

Biennials and Perennials—With good care many of these increase rapidly, sending up additional stalks from the new roots. The supply may be increased by dividing and transplanting the roots. If more are not wanted, take out the surplus growth to keep them in proper limits. Sow seed, m, ll. Among these may be named carnations, pinks, daisies, chrysanthemums, lillies, sweet williams, yuccas, peonies, columbines, hollyhocks, dielytras, etc.

Borders—Trench deeply and make quite rich. Lay them off three to four feet wide for convenience of working. Prepare for sowing seeds, ff, m, by spading and raking until the soil is mellow and free from small stones and lumps.

Box for edging or borders may be set out, m, l. Set thinly, and in straight rows by a line, or in regular curves to conform to the shape of the flower bed or border.

Bulbs—Hyacinths, tulips, crown imperials, etc., should be in bloom, m, ll. Support the heads by tying to small sticks, and water if the ground be dry, but do not wet the blooms. The flowers will remain longer if shaded from the sun.

Carnations—Transplant to open ground, ll, those kept in pits during Winter. Shift those needing it to larger pots where kept for house plants. Keep well watered and the soil loose around them. Separate the layers if not taken off last season.

Dahlias and Gladioli—Early blooming is secured by planting the tubers in boxes, m, ll. These are set in the open air in mild weather, and kept housed when cold. When well started, and the weather is warm and settled, they are transplanted to the border.

Dicentra (Dielytra), is one of the most beautiful flowers in the border. Plant out and divide roots, m, l.

Draining is beneficial here as elsewhere. Especially should drains be laid under walks where the ground is at all wet.

Edgings around the borders may be of grass or Box. The latter is preferable if it can be procured. It should be kept trimmed down to not more than eight or nine inches, though by main walks which are long, a higher growth is allowable. Fill vacant spots, f, m. If grass be used, trim the edges evenly, and keep from encroaching on the border. A steel-edging knife is the best implement to trim the turf with.

Evergreens succeed best transplanted in May. They can, however, be moved now, if specially desired.

Frames and Pits—Ventilate freely to harden off the plants and prepare them for planting out. Transplant from them, m, ll, if the weather has become mild and settled.

Flowering Shrubs—Plant, ff, m, the althea, flowering almond, azalea, chionanthus, flowering currant, deutzia, euonymus, holly, Japan quince, laburnum, lilac, philadelphus, rose acacia, snowberry, snowball, spiraea, tree peony, weigelia, etc. The early flowering shrubs will give a finer bloom by being transplanted as soon as the ground is in working order.

Gravel Walks—Rake off the gravel, hoe out grass, sow liberally with salt to prevent future growth, and replace the covering smoothly and evenly, adding more where needful. Make new walks, f, m.

Hedges—Set out privet, althea, buckthorn, etc., for hedges, f, m. Those to be planted with Arbor Vitae, hemlock or other evergreens, are better left until next month. Osage Orange and honey locust are of too rampant and coarse a growth to form a handsome screen or protection around the pleasure grounds.

Honeysuckles, Wistarias, and other climbers—Tie up and arrange upon trellises, m, ll, any plants laid down during the Winter. Divide and reset roots, ff, m.

Labels should be affixed to all flowers planted, with the names plainly marked. Become familiar with the botan-

ical names of the various kinds grown; it will be a good introduction to further study. Prepare an ample supply both of labels and stakes, during dull or rainy days. Large numbers will be wanted soon.

Lawn—Its beauty depends mainly on a thick, smooth, velvety surface, free from all unsightly objects as twigs, dead leaves, etc. Sow seeds of mixed grasses for new lawns, or on bare spots of old; top dress with guano, bone dust, ashes, or other finely divided fertilizer, and roll smooth. Liquid manure may be given by attaching a sprinkler to a hogshead set upon a cart or wagon.

Prune, ff, vines or shrubs not yet attended to.

Petunias and Verbenas—Sow seeds of mixed varieties, m, l. Procure rooted plants from florists and set, ll. They make a fine show when set in masses.

Roses—The almost endless variety of monthly, remontant (twice blooming), and common sorts, enables the cultivator to secure a rich profusion of bloom from these universally popular plants. They can be procured in any quantity from nurserymen, whose catalogues enumerate hundreds of sorts. The Remontant, sometimes called Hybrid Perpetual, will give the best satisfaction for hardy free blooming and handsome sorts. Plant out, ff, m. Prune and tie in place those trained to trellises or pillars. Uncover tender varieties buried or tied up last Fall.

Shade Trees—Replace those that are not thriving with vigorous young trees, if they can not be brought to good growth by proper cultivation. Plant deciduous kinds, ff, m, observing directions given on page 103, in this paper. Prune off straggling twigs and suckers.

Tender shrubs and vines which were strawed up, or otherwise protected last Fall, may be uncovered, f, m, according as the season is early or backward. If the plants are quite tender and covered with a thick coating, remove a portion at a time.

Vines and Climbers—Plant, ff, m, bignonia, clematis, honeysuckles, ivy, trumpet flower, virginian creeper, wistaria, moneywort, etc.

Green-Houses.

Too high a temperature and insufficient ventilation force plants into a spindling, sickly growth, and if continued destroys all vigor. As the weather is now growing warmer, care will be needed to prevent this. Except, perhaps, on occasional cold days artificial heat will not be required. The sashes may be removed almost wholly during mild weather, and the plants thus hardened for transplanting out. When the temperature rises quite high, give plenty of moisture by frequent syringings.

Bedding Plants—Propagate by cuttings, layering, and dividing roots, an ample stock of verbenas, petunias, geraniums, daisies, pansies, etc. These will be wanted the latter part of the month or the first of May for the open border. Expose by degrees to gradually harden them for the change.

Bulbs in bloom should be shaded from too powerful light which will cause the flowers to wither sooner; they require plenty of air and water. Those that have passed out of flower may be planted out.

Callas—Keep them in erect position by frequently turning to the light. Give abundance of water and keep free from dust.

Camellias—Syringe freely and insert cuttings.

Cape Bulbs in flower should be brought forward to the light and have plenty of air to encourage the growth of healthy flowers. Keep them from the direct rays of very bright sunshine to prolong the blooming.

Cuttings of fuchsias, geraniums, myrtles, hydrangeas, camellias, jasmines, salvias and most other kinds, may be made. Choose well ripened growth, and insert in soil prepared from sand and leaf mold, place the pots where they will receive good bottom heat and shade, and water carefully. Hard wooded kinds which do not root freely, should have bell glasses placed over them to insure growth.

Head down shrubby plants that are stunted in growth and not thrifty, at the same time shift to new pots and cut out diseased roots.

Inarching may be performed this month on oranges, lemons, pomegranates, and other plants of shrubby growth. Full directions for the process are given in Vol. XVI, page 184 (August No.).

Insects require continual watchfulness. Where ants are troublesome, set sponges sprinkled with sugar, and destroy them by soaking in hot water. Syringing and fumigations with tobacco will keep many in check.

Mildew—This may be remedied by sprinkling flour of sulphur upon the plants where it appears. Dust it also upon the flues and wherever traces of it are found.

Pot off annuals previously sown that have attained sufficient size.

Pruning—Cut back and pinch in all straggling shoots that interfere with a well shaped head.

Sow seeds for green-house culture early. Geraniums, oleanders, aloes, cactuses, mimosas, euphorbias, cinerarias, solanums, etc., etc., should be sowed in light prepared soil, plunged in the bark bed for good bottom heat, and covered with glass. Many of these require even months for vegetating.

Shifting—When plants need more room, change them to larger pots on a mild day. Cut away dead or diseased roots. Place an inch or two of lumps of charcoal or broken crocks upon the bottom, set the plant with its ball of earth upon these and fill around it with fresh compost. Give fresh earth to plants that do not need transplanting.

Suckers springing from the various plants may be removed and planted for propagation.

Water should be given according to the wants of the plants. Those which are growing rapidly require a greater amount, than when partially dormant. Supply them only when the earth becomes dry.

Hot-House and Conservatory.

More air will be required as the heat is increased by the advancing season. During the middle of the day, or after ten o'clock in the morning if the temperature rises above 70° Fah. admit abundance of air by opening the roof lights, always being careful to avoid chilling the plants. Do not let the mercury fall below 60°. Fire will be necessary evenings, and cold windy days, the fruiting plants especially require uniform heat. Preserve the most scrupulous neatness. Pick off and remove all decaying leaves and branches and keep all plants free from dust.

Cuttings may be taken and managed as described above, under "Green-House." Bring a good supply of those there alluded to into these houses for quick starting.

Flowers in Pots—Continue to bring in from the green-house for blooming, introducing a few at a time to keep up a pleasing succession.

Fuchsias—Water freely those that are in bloom. Take cuttings to increase the stock.

Grapes—Continue to thin where needed. Cut back the laterals above the bunches to three leaves, and remove shoots between the bunches and the main cane. As the berries swell, support the shoulders of the bunches by tying to the canes above. Syringe freely, adding sulphur to the water to prevent mildew. Some of the vines have only burst their buds, and need little care at present.

Insects will require continued watchfulness. Pick them off by hand, and continue fumigations with tobacco and syringing.

Pines are now about fruiting, and require moisture in the atmosphere but not so much at the root. To secure this, water the walks and flues frequently, thus producing artificial heavy dews. To secure large specimens of fruit, destroy the growth of suckers on a few of the most promising plants. This throws the strength of the plant into the fruit.

Propagate a large stock of both house and out-door plants for flowering in the borders, by cuttings, layers, and suckers as directed above.

Seeds of desirable hot-house plants may be sown now in pots, plunged in the bark-bed, and covered with bell glasses, or in their absence with a pane of glass laid over each pot. Water them occasionally. Shifting to larger pots will be required as in the green-house; the directions given there apply in this department.

Apiary in April.

BY M. QUINBY.

Continue to feed light stocks as they need it. There is always danger when bees are fed, that strong colonies will be attracted to rob the store thus supplied. For this reason it is best to feed only as much as is actually required, then in case of robbing, none will be wasted. Never feed to all the hives promiscuously, by placing it where all can have access to it. Keep the entrances of all the hives contracted in proportion to the number of bees in the colony, allowing more room where the stocks are strong.... Do not fail to watch for indications of robbing on the first really warm days, their morality is severely tested before honey is supplied by the flowers, and bad habits are best nipped in the bud. This can be decided more readily late in the day, as they will continue to work until nearly dark if it be warm. Should they be detected in this work, remove the invaded hive to a dark room or cellar, and keep them there until two or three days warm enough for them to fly, have passed; then return it to the stand. Or, if practicable, the hive may be removed, at first, to a new locality a mile or more distant. To prevent the weeds and grass from growing about the hives, the surface of the ground may be covered two or three inches with spent tan or saw-dust, when practical.

ble. The stands in a yard thus covered, need be raised only a very little, to be out of the way of grass and weeds, and are always dry enough for a bee to alight on it safely. The labor of preparing a yard in this way, will be quite as likely to make a paying return, as that of building an extensive bee-house....More moth worms may be found chilled in the morning on the floor of the hive this month and next, than at any other season; they may be readily scraped out and destroyed....The flour feed recommended last month, should be given more sparingly, as they begin to get pollen from the flowers. It will probably soon be neglected altogether....Those having the movable comb hive, should avoid opening and exposing the interior in the middle of a warm day; it might induce robbing at any time before the flowers yield honey. Early in the morning while the air is frosty, is not a good time on account of chilling the brood; the air should be nearly warm enough for them to fly, before operating....As long as a colony is prosperous and healthy, it seldom pays to transfer from the box hive to the movable frames. But if it is decided to do it, now is the time for the operation.

Agricultural Lectures at Yale College.

The lectures and discussions at New-Haven, which were in progress when we went to press last month, closed up with the highest satisfaction to all concerned. During the course, about sixty lectures, of an hour or more each, were given, generally at 11 A. M., 2½ and 3½ P. M., and occasionally in the evening. Almost the whole of each day, not devoted to the lectures, was occupied from 9 A. M. to 9 P. M., and later, in discussions, part of the time in formal meetings at the Hall, and at other times by groups gathered at the hotels, or rooms of individuals. It is certain that at no other time in the present or the past, has there been such a thorough talk between practical men upon the subject of agriculture generally, including general soil culture, stock raising, etc., and upon horticulture, including fruit growing, and general gardening. We believe nearly two hundred persons were present throughout the whole course, while four to five hundred attended during part of the time. It can not be otherwise, than that most of these persons gathered many new ideas, and that every one carried home much material for after thought, all of which will tend to modify and improve practice.

The gathering was eminently one of practical men, including not only those who were called upon to deliver formal lectures, but also those who took part in the discussions, and those who attended merely as listeners or students. The leading lecturers were not wordy, self-styled professors—those who could write and talk on any subject better than they could practice, but they were those whose prestige and reputation resulted from what they have done in their several pursuits. For example, it is worth while to hear and talk with such men as Cassius M. Clay and Lewis F. Allen on the selection and breeding of cattle—men who have attained reputation and eminence by their successful labors in the business. We might say the same of Wilder, Grant, Barry, etc., who talked on fruit growing, of Fitch on insects, Johnson on agricultural chemistry, and so of others. Almost every farmer would make quite a journey, to sit down and talk familiarly with any one of these men with regard to their specialties. Those attending the convention at New-Haven, enjoyed such intercourse with many of the class of men referred to.

Most of the lectures were familiar talks, rather than formal discourses, and the speakers generally allowed themselves to be interrupted at any time, just as pupils would question a teacher in the school room. After an address of this kind, the lecturer usually sat down upon the stand, and answered a multitude of queries on the subject of the address. This, and the stated discussions,

we consider among the most valuable features of the convention. Any skillful speaker can make up quite a lecture from books, but it is a far different thing to discourse of his own views and practice, and be ready to give reasons drawn from his own experience and observation, for the faith that is in him, and the suggestions he may offer.

We repeat, that the arrangements and exercises were highly satisfactory to all who accepted the invitation to be present—we wish they had numbered by thousands, instead of by hundreds—and this satisfaction was expressed freely, not only in private conversation, but by formal resolutions at the close, giving a hearty and unanimous vote of thanks to Prof. Porter, who was chiefly instrumental in getting up and carrying on the enterprise, and an equally unanimous request that a like convention should be called during next Winter.

We are glad to feel assured that this will be done, and that in all probability we shall have a continuation of similar meetings from year to year. A large sum, over \$40,000 we believe, has already been contributed toward the erection of commodious buildings for the Yale College Scientific and Agricultural School, and during the Summer, a complete set of models and paintings of animals, of different kinds of agricultural implements, of fruits, etc., will be gathered for use in illustrating future lectures and discussions. The experience of the past will afford valuable suggestions for future plans and arrangements. It may be early to talk of the matter, but every cultivator, who can possibly do so, should, in laying out his plans ahead, make arrangements to attend a month at New-Haven next Winter.

REPORT OF THE PROCEEDINGS.—Several persons have inquired, whether full reports of the doings and sayings would not be published. This would be entirely impossible—a dozen dollar volumes would hardly suffice for the purpose; and further, no complete record was kept. Several daily and weekly journals were represented, and very condensed outlines of a part of the sayings were published. We have copies of these reports, besides some fifty manuscript pages of our own notes upon the talks about domestic animals alone. These written out, would fill several hundred pages. We intended to have given an instalment in this number, but have neither time nor room left. All we can promise, is to give the gist of the matter in future articles upon the several topics, with perhaps occasional extracts from the leading lectures and discussions.

How to Conduct Experiments.

A correspondent writes that he planted a bushel of one kind of potatoes, cutting them into pieces containing one or two eyes, and dropping two eyes in a hill, which returned him 56 bushels. A bushel of other kinds treated similarly, gave but one third or one fourth as much, and hence he concludes the first named variety is greatly superior. This, quite likely, is the case, but the account of the experiment does not prove it; for some varieties of potatoes contain many more eyes than others, bushel for bushel, and would, if planted in the method described, occupy a larger plot, which would be likely to yield the greatest return for the amount of seed used. As no statement was made of the space covered by each kind, we can draw no correct conclusion. In conducting experiments like the above, every fact bearing on the matter should be noted at the time of its occurrence, and written down; then nothing important will be lost by forgetfulness.

There is frequently a failure to place the different subjects treated, under the same conditions. Thus, in comparing several sorts of grain, if large patches, say of an acre or two each, are sown in different portions of the field, there may be so great a difference in the soil, exposure, etc., as to materially affect the results. The level at the foot of a hill is more favorable than the slope, a bed of sand underlying one patch would afford better drainage than would be enjoyed by another plot resting upon clay. Uniformity should be secured in such cases, by sowing alternate narrow strips, the whole length of the field.

Experimenters often try to ascertain too many things at a time; thus: a person planted several varieties of corn, to test their comparative yield, and attempted also to decide the value of different fertilizers by using a separate one on each kind planted. But when the crops ripened, it could not be determined whether the greater yield of one sort was a result of its own peculiar habit, or the effect of the special manure used.

One season's cultivation is insufficient to test any plant or mode of culture. The weather may be unpropitious, insects may prevent success, or failure may result from influences discoverable only after years of trial. If every cultivator would each season try some one experiment, carefully note all the facts of the case, and communicate them for the benefit of others, the statistics thus obtained, would push the science of agriculture forward with rapid advances.

Hogs at the West.

In our February issue, page 40, we presented a table, showing the number of hogs packed during 1858 in sixty-two of the principal Western towns. The statistics have now been made up for 1859, and we give below very interesting tables, exhibiting the aggregate of hogs packed both in 1858 and 1859, in eight of the principal pork-raising States, together with a statement of the average weight of the dressed hogs, the average yield of lard per hog, the aggregate yield of lard, etc.

Number of Hogs slaughtered at the West, during each of the last two seasons:

	1858-9.	1859-60.	1858-9.	1859-60.
Ohio.....	638,397	680,858	Missouri.....	163,774
Indiana.....	412,289	404,046	Iowa.....	166,936
Illinois.....	591,380	504,935	Wisconsin.....	54,500
Kentucky.....	397,117	320,487	Tennessee.....	26,800
Grand Totals.....	2,465,035	2,350,522		
Decrease.....		114,513		

Average weights of Hogs; also yield of Lard per Hog.

	Av. weight of Hog.	Yield of lard of Hog.		
	1858-9.	1859-60.	1858-9.	1859-60.
	lbs.	lbs.	lbs.	lbs.
Ohio.....	190	191 6-19	26	26
Indiana.....	185½	192½	23	27
Illinois.....	187	191	27	30
Kentucky.....	219	197	30	31
Missouri.....	190½	194 2-9	25	26
Iowa.....	181	192½	28	29
Tennessee.....	212	189	28	26
Wisconsin.....	230	207	28	29

These aggregate weights of equal numbers of Hogs each year, compare as follows:

1858-9, lbs.....	404,786,362
1859-60, lbs.....	402,294,695
Decrease.....	2,491,667

This is about equal to 11-16 of 1 per cent.

The total yield of Lard in each State is as follows:

	1858-9.	1859-60.	1858-9.	1859-60.
Ohio.....	16,470,772	17,629,144	Missouri.....	3,769,350
Ind.....	9,257,017	10,665,763	Iowa.....	4,848,220
Illinois.....	15,067,260	15,148,050	Wis.....	3,771,402
Ky.....	14,260,212	9,991,097	Tenn.....	4,840,144
Total lbs.....	66,276,925	65,406,738		1,580,500
Decrease.....		870,186		696,800
This decrease is equal to slightly over 1 per cent.				

We have the following result for 1859-60:

Decrease in No., 4½ per cent, equal to.....	114,213 Hogs.
Decrease in wght, 11-16 of 1 p. cent, equal to.....	16,946
Total decrease.....	131,159

This is equal to 5½ per cent less than the crop last year, 1½ per cent less than the crop of 1857-58, but 16½ per cent greater than the crop of 1856-57. Shipments to the East this season and last, as far as ascertained, from Oct. 1 to Feb. 1, were 277,120 in 1859, and 214,037 in 1860, showing a decrease of 63,083.

Shade the Road-sides.

On a certain highway, in a town familiar to us, many of the native forest-trees were left standing by the first settlers, at intervals of fifty to a hundred feet, and the road winds among them in curves as graceful as could be drawn by the best landscape-gardener. These trees are mostly of elm, maple, and white ash, and are now quite venerable with age. That road is the favorite resort of pleasure-riders in summer. And why? Plainly, as the whole community declares, because of the grand old trees and the winding road, and nothing beside. It might not be best to have trees scattered about in every highway, as they are here, but trees should be there somewhere, and, most properly, by the sides of the road.

What attracts city-residents into the country during summer? Nothing more powerfully than the shaded roads and walks of our villages. It is the rows of thrifty maples and elms before them that make the homes of our villages look so comfortable, and that make a summer morning or evening walk in the neighborhood so pleasant. Do not these embellishments also enhance the value of one's property? Do they not pay more than legal interest on their cost?

That's all very well, says an objector, but I have set trees by the roadside, year after year, and got nothing for my pains; they have all died. Horses have gnawed them, street-cattle have rubbed against them and broken them down, boys have hacked and girdled them, and one after another they have all died. I have got tired of working for the public.

Indeed, sir, there is truth and force in your complaints, but keep patient, and think again. How did you plant your trees? I saw a neighbor of yours set out trees before his house precisely thus: He went to the woods with his ax, (not his spade,) cut a circle around the tree chosen, about the size of a half-bushel measure, pried the trees out of the ground, and then, hailing the first lumber-wagon that passed by in the road, got them carted home. He then dug holes about the size of the roots of his trees, in soil quite hard, set in the trees, threw on a little dirt, smoothed off the surface of the ground quite complacently, and his work was done. The trees were from twelve to fourteen feet high, and the top branches were not shortened in at all to balance the mutilations of the roots. These trees nearly all died a lingering death. Were your trees planted so? And do you do well to be angry, if they die? Nay, verily. But try again, and do better.

Some persons who have no knowledge of tree-planting, and no time for doing it, employ itinerant tree-peddlers to set them out and warrant them, for a specified sum. This may sometimes answer, but it is a bad practice. If a tree is warranted to live, the proprietor is apt to neglect it: drouth may scorch it to death, cattle may rub it down, or boys swing upon it, but it is no concern of the owner, for was it not warranted? Moreover, the owner will get less enjoyment out of his trees. For this end, he ought to select and dig up (or help in digging) his own trees, set them out, protect, water, mulch, dig about them, and do whatever may be necessary for their welfare. That's the way to enjoy trees, and to succeed with them.

Care should be taken in selecting trees for transplanting. They should be symmetrical, vigorous, and taken from dry land, and from open and exposed situations. They should not be dug up in haste, or rudely. A trench should first be opened around the tree, several feet off, more or

less according to its age, and as many as possible of the small roots saved. A crow-bar should seldom if ever be used to pry out a tree: the roots will very likely be split or marred by the operation. A better way is to actually unearth the roots, by digging all around and under them, until there is nothing left to bind them to the ground: then lift the tree, and carry it away.

But with the best care, some trees—such as the oak, tulip-tree, and magnolia—are hard to transplant, after they have attained much size. Their tap-roots are difficult to manage. The surest way to succeed with them is to take two or three years for it. First: cut a trench around one side of the tree, cutting off the extremities of the roots with a sharp spade or pruning knife; then cut off the tap-root which strikes down deep from the central part of the tree, and afterward fill up the trench with dirt, as carefully as possible. The tree will suffer no material injury from the operation, and will at once form new roots in a lateral direction. In a year or two it may be transplanted with safety.

Now, let us return to those cattle and boys who injure our shade trees. A community is but half-civilized which allows cattle to roam at large, trespassing, as they do continually upon gardens, door-yards and grain-fields. Perhaps a little combined effort among the leading citizens of a place would bring about a change in this respect. Failing in this, we should protect every tree with some substantial guards, made of scantling and slats. If every house were provided with good hitching-posts, horses would seldom be tied to our trees. Yet, some vigilance might still be needed to remind the thoughtless, and to warn off willful trespassers. As to the boys, a few kind words, with an occasional seasoning of firm remonstrance, will go a great way. It is rare that these "hopes of the nation," these "possible Presidents," will long or wilfully practice such barbarities. At any rate, don't let us magnify our difficulties, but rather overcome them by planting more trees.

Irrigation.

Irrigation, or flowing water over grass lands is but little practiced anywhere in this country. Every one may see an illustration of its benefits in those fields that lie on the lower side of a road, where the path-master has turned the water from the highway on to the adjoining land. Some manure falls in the road, and the soil is pounded up very fine by the continual trampling of feet and the rolling of wheels. This fine dust and manure is carried off by every shower, and spread over the meadow. It is noticed that all along such sluice-ways the grass grows very luxuriantly, often lodging. The same thing is frequently seen about barns and dwellings. Sometimes the barn-yard overflows in very wet times, and wherever the water flows off over the adjoining field, the effect is seen in the increasing luxuriance of the grass through the summer.

The advantages of irrigation have long been understood in England, and are beginning to be appreciated in this country. The most astonishing results are recorded from this process. A recent letter from one of the best farmers in Putnam County, who has had over forty years of experience, and who has one of the best grazing farms in the State, speaks of irrigation as the greatest of all his improvements. This matter was up for discussion at the last Fair of the Broome County Agricultural Society, where it was claimed to be the cheapest method of enriching grass lands, securing, under favorable cir-

cumstances, four tons of hay to the acre. There can be no doubt of the utility of the measure, where there are small streams running through farms, that can be controlled for this purpose.

The time of this artificial irrigation is from late in the Fall until Spring, when the grass is well started. The dam is constructed and furnished with a gate, which gives the operator the control of the stream. The best time for putting on the water is in rainy weather, when the snow is melting, and the water is muddy. The more muddy the water the more valuable it is for irrigation. The snow and rain water contain appreciable quantities of ammonia, and this has a surprising influence upon the growth of grass.

Sometimes the bottoms of these artificial ponds are plowed, when they are dry, during the Summer, for the purpose of furnishing sediment to the stream in the Winter. If the pond be but a few inches deep, it is stirred up with a team and harrow, when the gate is hoisted and immense quantities of earth are carried off in this way, and distributed very evenly over mowing fields. It imitates, on a small scale, the overflowing of the Nile or the Mississippi. The great value of intervalle land is owing to the annual deposit of mud left upon them by the streams that overflow them. The soil of a small part of the farm is sacrificed to enrich the rest, for the land devoted to ponds can not be used for other purposes. Even the subsoil, especially if it be clayey, has an excellent influence when deposited as a sediment over meadows.

There are thousands of farms all over the country that have streams available for irrigation. Sometimes half the farm is so situated that water can be turned over it. It is one of the most inviting fields of experiment open to the farmers who enjoy this facility. In many cases the streams are so situated that they can be turned over the adjoining acres at very small cost. Four tons of hay to the acre upon land that now grows one, is an object worth looking at.

Horse Radish.

Perhaps there is no vegetable so really useful, that is treated with so much neglect as the Horse Radish. Scraped into shreds, or grated fine, and soaked in vinegar, it becomes an excellent condiment for fresh meat and fish; it has medicinal uses also, in cases of dropsy, scurvy and rheumatism. It stimulates digestion, excites the glands into action, and warms up the blood in a healthful manner. Aside from all domestic uses, it is worth raising for market. Large quantities are annually bought up by pickle manufacturers, ground and packed in closely corked jars and bottles with vinegar, for sale in this country, and for exportation.

Culture.—It will grow without culture; but to raise it in the best and most profitable manner, it should be treated with some care. Choose a spot of good sandy loam, rather inclining to moisture. Lay off as much space as can be devoted to it, give it a good trenching, and work some old manure down into the lower part of the trench. This will prevent the formation of weak side-shoots or prongs, and will favor the growth of large and long roots. After spading and leveling the ground, make holes for the plants eight or ten inches apart, in rows one foot apart. These plants may be cuttings taken from the buds or crowns of old plants; in which case, they should be set in holes near the surface. Or they may be taken from the lower part of the root, in pieces two inches long; in which case, the cuttings should be set a foot or so in depth. Either way will do.

When roots are wanted for table use, uncover

one end of a row to the depth of the roots, so that the whole plant may be taken out without breaking. It will be found that plants grown in this way, greatly excel those left to shift for themselves. *

A Dwarf Broom Corn.

This is to us a novelty, and it has every appearance of being valuable. During the Winter Mr. E. B. Good, of York Co., Pa., sent us an account of it, and we desired him to forward some specimens of the entire stalk, including roots and brush, which he did, stating, that the samples were of about the average size, but not so fine as he could have furnished, had we applied earlier. We were so well pleased with them, that we suggested his advertising the seed, if enough could be got to make it worth while, and he has done so. (We have recently procured a moderate quantity of the seed, which will be offered as premiums only. See one of the closing pages of this paper.)

The specimens before us have about two feet of stalk and two feet of brush, the latter being of very excellent quality. As this is not half the height of the common variety, it may be grown much thicker on the ground. The upper leaf-sheath embraces the lower part of the brush, which, with its low growth, saves all necessity of breaking down the brush while ripening. As far as we can gather from the statements received, and from the specimens, we think it likely this may be decidedly superior to the kind generally cultivated. It is certainly worthy a trial, and for this purpose only we offer it for limited distribution. We shall test it the coming Summer, and we request reports from those who may receive the seed. Mr. G. states that it should be grown thickly in the rows, to secure the best development of brush.

Spelt.

GERMAN WHEAT—SPELT WHEAT—DINKEL—(*Triticum spelta*.)

The above names are all applied to a variety of wheat, grown extensively in Germany, and also in the southern part of France, in Switzerland, in Italy, in some parts of Spain, in the north of Africa, and at the Cape of Good Hope. Small importations of seed have been made to this country, but after several inquiries at seed stores in this city, (in response to the request of Mr. Foley, of Tioga Co., Pa., and two or three other subscribers,) we have been unable to find any of the seed, and have never seen it growing. From the description we find in foreign works, this grain would seem to be worthy of trial in some parts of our country.

Spelt belongs to the *Triticum* or wheat family. There are Winter and Spring varieties. There are also the awned (or bearded chaff) and the awnless. The bearded variety is most cultivated, but the chaff can not be removed by ordinary threshing, a mill being required for this purpose, similar to a rice mill. For sowing, this chaff need not be removed.

Dr. Wm. Löbe, a German author, in his *Handbook of Rational Agriculture (Handbuch der rationellen Landwirthschaft)* for 1858, says: The Dinkel (spelt) is better protected than the common wheat, by its strong husks, against the injurious influences of a rough or wet climate, and therefore less subject to smut. It can be grown on a lighter soil; is less exhausting; suffers less from ruin; can be sown later in the season; is less exposed to ravages by birds; and gives the

finest flour, while its straw is better adapted to feeding to horses, because less stiff or woody. This last characteristic, weakness of the straw, is, however, an objection on account of the liability of the heads to break down when over-ripe. Generally, the dinkel is grown where the conditions of soil and climate are not all favorable to the culture of common wheat.

After describing the several varieties of Winter and Spring dinkel, including both white and red, Dr. Löbe says, the culture of Winter spelt or dinkel is very similar to that of common Winter wheat, except that the dinkel does not require so fertile a soil as wheat: it thrives better than wheat, after potatoes, turnips, flax, and peas. As it is sown with the husks on, about twice the bulk of wheat seed is required. It is often grown mixed with rye, about one fifth of the latter, and the mixed product ground together for bread making. Spelt and wheat should not be grown mixed. Spring spelt is cultivated the same as Spring wheat. The removal of the husks is done in a burr-stone mill, as stated above.

According to the accounts we have, spelt would seem to be best adapted to our southern and south middle States, though we hear of its having succeeded well in one instance in Scotland, at a height of 600 feet above the level of the sea. It has probably been tried on a limited scale in some parts of this country, but we are not aware at what points, nor with what success.

A Live Farmers' Club.

To the Editor of the American Agriculturist:

....We have a very pleasant, interesting, and I think profitable Agricultural Society (in a small way) in our neighborhood. It is limited to fifteen members, who meet once a month at the residence of one of the number, dine, and discuss some subject pertaining to agriculture, agreed on at the previous meeting. The society as "Committee of the whole," examine to some extent the premises of each member in turn, but a special committee of three is appointed to minutely examine the farm, crops, fencing, stock, implements, etc.—and present to the next meeting a written report to be put on file, of the condition in which they find things. If good, and worthy to be commended, it is done; if otherwise, the brother is not spared—so that once in fifteen months each member is brought under the screw.

In addition to this ordeal the brother's character as a farmer passes through once in fifteen months, and there is a constant watch over each other. This is manifested in the humorous jokes played off at every meeting; for if a member sees any thing amiss on a brother's farm, he is sure to speak of it. This you may be sure makes us, and keeps us, more particular.

Talbot Co., Md.

G. W. HARRINGTON.

[The plan contained in the above extract from a business letter, is excellent. Emulation and fear of ridicule are among the most powerful stimulants to action, and we predict that each member of that association will be made a better farmer. The good dinner provided—especially as our correspondent says alcoholic drinks are excluded—will promote good humor, and prepare the company to appreciate and submit to the "sharp hits" provoked by careless or unthrifty management. We place this institution on the list "as worthy of general adoption."—Ed.]

The *London Punch* says that the reason why editors are so apt to have their manners spoiled, is because they receive from one correspondent

and another, such a vast number of evil communications. Does *Punch* speak from experience?

Not Advertising Information Gratis.

HOW TO "RAISE THE WIND."

We have a capital plan for "raising the wind," that is, making money easily, which we shall not patent, but throw open to the free use of all our regular paying readers. All others who adopt the plan, are expected to send us in advance "One Dollar" in payment for the secret. Here is the plan: Go to some distant Western State; select a plot of ground, no matter what its character; buy it at the government price of \$1½ per acre, or less if "swamp lands"; draw up a map of it, cutting it into city lots; plant yourself at some out-of-the-way Post Office, in an Eastern State, (the more out-of-the-way the better for your safety); employ in some adjacent city an unscrupulous Commissioner for the State where your land is located, to sign your deeds; draw up a splendid map of your property, being sure to locate it on one or two railroads, present or prospective; print a lot of flaming hand-bills and plausible circulars, showing that your city must soon be an immense one, and each lot be worth thousands of dollars, and scatter them through the country; in these offer to give away a LOT to each of the first 500 or 1000 applicants, who send you simply "one dollar" to pay the Commissioner's fee for acknowledging the deed; tell them as a reason for thus offering them these lots free, that you want them to aid you in directing emigration to the vicinity of the prospective city.

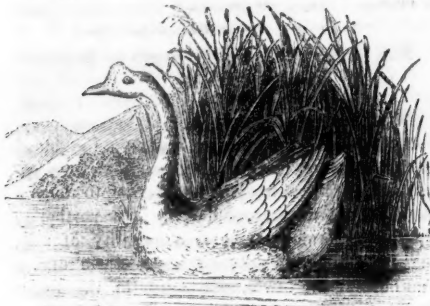
You will find fools enough to snap at the bait, and the dollars will pour in like a hail-storm. (Of course, you need not stop giving away lots, so long as the dollars come; the buyers will think only 500 lots are given away, but you need not tell them to the contrary.) Now see what a fortune you can make: You buy 312½ acres which, at \$1½ per acre, will cost you \$3906, or say \$4000, and this you cut into 50,000 City lots. Your printing of circulars, blank deeds, etc., advertising, and postage, will cost about \$4000 more. You will need to pay the Commissioner perhaps \$2000 for signing the deeds. You "give away" 50,000 lots, and get back "commissioner's fees of \$1 each," or in all \$50,000, making a net profit of \$40,000! Is anything more simple?

To prove the feasibility of this enterprise, we have only to say, that the thing has been done, and is now being done, and will continue to be, until the "fools are all dead," so that no more dollars can be got.

Our readers, who are receiving and sending circulars of enterprises like the above to the *Agriculturist*, will understand its drift.—"Wise men never buy a pig in a bag."

Those Italian Bees.

From what has been said by Mr. Langstroth in regard to these bees, and from sundry newspaper items and advertisements, a good deal of interest has been awakened in regard to them. We have no opinion to give. They have not been tried thoroughly in this country. They may be all that is claimed for them, but we must confess to a little surprise that a variety of bees, having such superior merits as are claimed for these, should not have been, ere this, more widely distributed throughout Germany and other parts of Europe, and even in Italy itself. We will hope for the best, and give due credit to those, who are willing to invest their time and money in a trial of them. Those who do so, will do it on their own account, and not upon our recommendation.



For the American Agriculturist.

White Chinese Geese.

The White Chinese goose was brought into notice a few years ago in England, by a Mr. Whitaker, who speaks of it in the following words: "The White Chinese goose is of a pure, spotless white, more swan-like than the brown variety, with a bright orange-colored bill, having a large orange-colored knob at its base. It breeds three or four times in a season, and its period of incubation extends to five weeks. They are prolific layers, but their eggs are small for the size of the bird, being not more than half the size of those of the common goose. The Spring goslings are easily reared, and are of fair average quality for the table. The disparity in size between the sexes is considerable, not unfrequently amounting to over one third of their relative weights."

This variety, of which our sketch is a good representation, is invariably more beautiful, and superior in every respect to its brown relatives. Its color, as its name indicates, is a pure white, which, contrasted with its yellow or orange-colored bill and legs, gives quite a pleasing effect, and it certainly deserves to rank in the first class of ornamental poultry.

They are beautiful birds either in or out of the water; the neck being long, slender, and gracefully arched when swimming. They are larger and less erect than the Brown Chinese, and apparently more terrestrial in their habits; the knob at the base of the bill is not only greater in proportion, but of a different shape. If they were only a variety of the Chinese kind, it is a question whether the bill would not retain its original jetty black, whatever change occurred in the feet and legs, instead of assuming a brilliant orange hue. If they were albinos, the bill would be flesh-colored, and the eyes pink, not blue.

Their movements on the water are very graceful, and their appearance is more like the swan than the goose. A quiet lake or pond is more to their taste, and more conducive to the fecundity of the eggs, than a swift running stream. It is delightful to see a flock of them on a fine day in Spring, lashing the water, diving, skipping, and rolling over through mere sport, and playing all sorts of antics. The gander is inclined to libertine wanderings, without, however, neglecting to pay proper attention at home. If there is another on the premises, there will be war at once, and one of the two should be disposed of. They are, if possible, more noisy than their dusky cousins; in the night, the least footfall in their vicinity will call forth their clamor. Any fowl stealer would be stunned with their din before he could capture them alive, and the family must be deaf indeed not to be aroused on the alarm thus given.

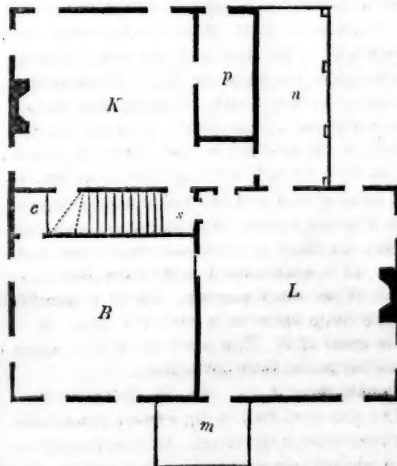
In point of longevity, they are said to be far from equalling the common domestic goose. Economically considered, they must, we think, yield precedence to the larger, better shaped, and better flavored Bremen. C. N. BEMENT.

Farming as a Whole does Pay.

"One swallow does not make a Summer," and a single case of success, in tilling the soil, does not prove that farming pays. The *average condition* of our farming population is, doubtless, the best evidence of the reward of husbandry. At the last census, there were in the State of Connecticut about 22,000 farms, generally occupied by their owners, who cultivated, on an average, about eighty acres each. The value of these farms, with the tools and stock, was estimated at about eighty-two millions of dollars. This is an average of thirty-seven hundred dollars to every farmer, invested in his business—to say nothing of the sums in bank stock, western lands, railroads, manufactories, and other enterprises. The productions of these farms, consisting of hay, grain, roots, slaughtered animals, butter, cheese, home manufactures, etc., was estimated at about eighteen millions of dollars. This would average to every owner of a farm, an income of over eight hundred dollars, exclusive of house rent, and fuel, and interest money. We doubt if any other class in the community, embracing so large a number of individuals, can show as much *average wealth*. Why should so many of our sons quit the plow for other more hazardous callings, when they have before them the moral certainty of success in cultivating the soil?

Plan of a Cheap, Convenient House.

In pursuance of our design to present plans of dwellings suited to a variety of circumstances, we in this number introduce one of a cheap, convenient house, contributed to the *Agriculturist* by Mr. J. S. Peers, of Madison Co., Ill. Accompanying the sketch he writes: A house may be very beautiful in its external appearance; it may even "fill the eye;" but if those who spend their lives inside, are daily compelled to walk two or three miles extra, on account of its ill arrangement, and the separation of the rooms, this fact



L, Living Room and Parlor, 20x20 feet—K, Kitchen, 18x18—B, Bedroom, 18x16—P, Pantry, 12x6—c, closet—s, stairs—m, Front Porch—n, Piazza, 18x7.

alone will counteract the beautiful external effect, and 'leave a sting behind.' The first considerations should be, *comfort, convenience, and economy of labor*. Therefore, the "Living Room" should be the largest and best in the house—the most cheerful and the most convenient. The plan I send speaks for itself. Here the living room opens directly into the kitchen, the stairs, and the family bed-room. [REMARKS.—This plan is certainly convenient for a small family, at least it is arranged to "save steps." For a small family, where the housewife attends constantly to

the labors of the kitchen, and has little help, the plan may be as good as any that can be adopted. There are, however, objections that should be remedied, wherever practicable. There should be more closet room on the first floor—the "running after things," up stairs or down, involves much labor. This plan would be improved by having an opening from the kitchen to the family bed-room, so that the latter could be used as a sitting room, allowing the living room to be kept more as a parlor or spare room. The bedroom is large enough to be used as a nursery, or children's room. One of the chimneys should be so placed that a stove-pipe could reach it from the bed-room. Whenever practicable, it is desirable to introduce between the kitchen and sitting room or parlor, a short hall, or closet, having a passage through the center, and drawers and shelves on either side. The two doors, one from the kitchen, and one from the other room, prevent a free passage of steam and gases from the kitchen. No chamber plan is given herewith. This can of course be arranged according to the size of the family, present or prospective.—Ed.]

Scientific and Practical Talks About Manures...IV.

(Continued from page 68.)

Before taking up the mode of treating, and the time and manner of applying manures to the soil, we must devote a little more attention to their composition and the probable value of the different kinds of fertilizers. By a fertilizer, or manure, we mean any substance which will directly or indirectly supply food to increase the growth of any plant. It has been stated that all plants are chiefly made up of four volatile elements, which are dissipated or driven off in an invisible form, when the plant decays, or is burned in the open air. These elements are *Oxygen, Hydrogen, Nitrogen and Carbon*. It has also been shown how these elements are obtained and applied, when we wish to increase the growth of a plant by giving it more food.

So far we have spoken of all plants as being entirely, or essentially, made up of these four organic elements. But we must now take into consideration the non-volatile portion, viz.; that part which is left in the ashes when the plant is burned, or when it decays. The ashes not being volatile can not be driven off by heat, nor be carried into the air by evaporation or decay, and for the same reason they can not be supplied by the air, but must come from the soil. These ashes being made up of various mineral substances, as potash, soda, lime, magnesia, etc., we will for convenience call them the *mineral elements* of plants, and the substances used to supply them to plants may be called

MINERAL MANURES.—When plants of various kinds are burned, there remains an amount of ashes equivalent to only about one part in every fifty, on the average. Some plants contain scarcely one part of ashes in the hundred, while others yield much more than two parts in the hundred. In some cases, 100 lbs. of dried tobacco leaves have furnished as many as 25 lbs. of ashes. But this is an unusual percentage; about 1 lb. of ashes to each 50 lbs. or 60 lbs. of most dried plants, may be taken as the average.

Now comes up the important question: *Are these ashes essential elements in the plants—do they form such a part of the substance of the plant as to be necessary to its construction or growth—can the plant not exist in perfection without the presence of these ashes in definite fixed proportions? Or, are these ashes to be considered as superfluous ma-*

terial, drawn into the plant from the soil by the sap, and left there by the evaporation of the sap through the leaves and bark? This is an interesting point, as will appear when we state that the theory of manuring, as taught by most agricultural chemists, is based upon the supposition that the ashes are the most important part of the plant to be looked after.

The reasoning is somewhat like this: "The organic portions of the plants—constituting say ninety eight parts in every hundred—are made up of four elements that are *always* abundant in the atmosphere; and from this source (the air,) the plant can readily get their organic elements. But the mineral elements of the ashes, or a part of them, are not always abundant in the soil. Therefore, the plant having an ever abundant supply of the organic elements, we have only to look after supplying the inorganic elements—that is, the minerals in the ashes."

This is the substance of the theory adopted at one time, and still partially adhered to, by Liebig, and by most agricultural chemists. The theory is at once beautiful and plausible, and it is hardly to be wondered at that it is readily fallen in with by theoretical chemists generally, and by the novitiate in the science of agricultural chemistry.

Starting with this plausible theory, the efforts of agricultural chemists have been directed to ascertaining the composition of the ashes of various cultivated crops, and of the soils upon which they grow, to the end that the deficient mineral elements may be supplied to the soil.

The chemists have been strengthened in the above theory by finding in the ashes of the same plants grown on different soils, an apparent similarity in the kinds and proportions of the various mineral elements. Thus: in 1000 ounces of the ashes of wheat, there have been found about 500 ounces of mineral phosphates; 250 ounces of potash; 120 ounces of magnesia; 80 to 85 ounces of soda; 25 ounces of lime; 7 ounces of iron; and 3 ounces of sulphuric acid.

Allowing these figures to represent the general composition of wheat ashes, the conclusion has been, that of these minerals, (phosphates, potash, soda, etc.,) there must be in the soil, and available to the roots, for every ten bushels of wheat, about 6 pounds of phosphates, 3 pounds of potash, 1½ pounds of magnesia, etc.; and that in their absence, the supplying of these several mineral elements in the proportions named, will furnish the necessary aliment for the wheat crop. For other plants, different mineral elements, or different proportions of those above named, are supposed to be essential. As stated in a former volume, Liebig, and others, after adopting this theory, commenced prescribing special fertilizers which severally contained the supposed requisite mineral elements for the different crops. Thus, a manure for wheat contained, say 500 lbs. of phosphates, 250 lbs. of potash, 120 lbs. of magnesia, 83 lbs. of soda, 25 lbs. of lime, etc.; while a turnip manure contained only some 60 lbs. of phosphates, 400 lbs. of potash, 50 lbs. of magnesia, 108 lbs. of soda, 125 lbs. of lime, etc. Such specific manures were patented by Liebig himself, we believe, but they utterly failed to produce the expected results. The same theory is put forth by the present manufacturers of superphosphate of lime, and importers of "American" and other phosphatic guanos, etc. That there is some defect in this theory, the hundreds of thousands of dollars, nay, the millions of dollars lost by farmers in the purchase and use of mineral fertilizers, during a dozen years past, bear abundant testimony. We venture the assertion that not

one farmer in a thousand buys any of these specific mineral manures beyond the second or third time. They have not proved profitable in practice.

Another idea growing out of the above theory was, and in some measure is yet prevalent, viz.: that since soils generally contain most of the mineral elements found in plants, it is only necessary to examine the soil chemically, to ascertain which element, required by the ashes of any particular plant, is absent, and then supply this one only. Thus, if a soil designed for ten bushels of wheat, contains abundance of phosphates, potash, soda, etc., but is deficient in lime, then all that is necessary is to supply the missing element. But since the ashes of ten bushels of wheat contain only 5 to 6 ounces of lime, how natural the conclusion of the enthusiastic agricultural chemist that "he expected to see the time when a man could carry to a field in his pocket all the necessary manure to secure a crop of wheat." We need only to say here, that after thousands of analyses of soils, this mode of ascertaining what mineral manures are needed for a particular crop, is nearly abandoned by all except quacks and humbugs who have a personal end to secure by keeping up and propagating the theory. Analyses of soils are continued by scientific men for the purpose of scientific investigation, but not now as being of practical utility in the application of manures.

But to come back to the question: are mineral elements, in definite proportions, essential to the perfect development of plants? There are strong reasons for supposing that some of the mineral elements are essential. We find certain of them always present, as for example, the ashes of wheat always contain more or less of phosphoric acid, and it would seem necessary that this should be the case, with this or some other material consumed as food, since our bones require phosphorus, and this must come from the food we eat. The same may be said of lime.

Still it is impossible to say that a wheat plant can not grow and perfect its seed without a definite proportion of phosphoric acid, or of lime, or of other mineral matter. Allowing phosphoric acid to be essential, we assert, that—all the analyses yet made to the contrary notwithstanding—it is still to be ascertained what is the exact amount of phosphoric acid necessary to the wheat plant; and so of the various other mineral elements found in plants. Further, it is yet to be shown that any soil, having the other qualifications requisite to produce a crop of wheat, does not contain an abundance of phosphoric acid and lime to supply the wants of the crop. This much is certain, that a soil of the ordinary depth may contain phosphoric acid enough for a hundred crops of wheat, and yet the skillful chemist may not be able to discover an appreciable amount of this element.*

All plants, and all animals (with the exception of the bones of the latter) are chiefly made up of the four organic elements. That several miner-

*Allow an acre to yield 20 bushels of wheat every year for a century, yet the total amount of phosphorus extracted from the soil would not exceed a pound for every 4000 lbs. of earth, estimating the soil at one foot in depth. The chemist in analyzing 100 grains of soil would find only about one-fortieth part of a grain of phosphorus, supposing there were only a sufficient amount for the 100 crops of wheat. This shows that a soil may contain phosphorus enough for alternate crops of wheat during 200 years, and yet the amount be so small, comparatively, as not to be discovered in an ordinary chemical analysis. And the same is the case with other mineral elements. There may be an abundance of them for all the wants, or supposed wants, of a great number of crops, and the quantity still be so small in comparison with the entire weight of a soil that their presence can not be determined by the most delicate tests of chemistry.

al elements are found in plants and in the bodies of animals, is not conclusive proof that these mineral elements are all needed there. A person may imbibe spring or well water containing, as it usually does, potash, soda, lime, etc., and these substances may be diffused all through the body, but the chemist on finding them in the blood or tissues, would not therefore consider them essential. A towel hanging down so as to touch a basin of sea water, would draw up a portion of the fluid, and along with it a quantity of salt, magnesia, lime, etc.; but the chemist on drying and burning the towel, and finding in the ashes the magnesia and lime, would by no means pronounce them *essential* constituents of the towel.

So the roots of a plant, standing in the soil, absorb water which, like spring water, contains more or less of the mineral elements of the soil. The water evaporates from the leaves, leaving behind the mineral elements thus taken up. The chemist, on cutting, drying, and burning the plant, finds these mineral elements thus *accidentally* present. Their amount and proportions depend upon the character and composition of the soils, and the amount of water previously evaporated and still circulating in the plant at the time of its gathering. What we are aiming at is, to show the little reliance to be placed upon that system of manuring which teaches to supply to the roots of the plant as fertilizers, those mineral elements which the chemist has chanced to find in the ashes of the plant. We do not yet know what mineral elements (how many or in what proportion) are to be considered *essential* to the growth and perfection of any one plant.

Illustration.—Agricultural chemists have all along claimed that silica is absolutely necessary to give strength and stiffness to the straw of wheat, oats, rye, etc. Prof. S. W. Johnson, in a lecture at the recent Agricultural Convention at New Haven, unsettled this theory, which has been considered one of the most firmly settled points of agricultural chemistry. Thus, he asked: If an abundance of silica gives the firm texture to the oat stalk, how is it that the leaves and chaff are so soft and pliable, when chemical analyses show that these contain three times as much silica as the firm straw? The answer would seem to be, that the silica has nothing to do with the strength of the straw, but that it is simply due to a close texture, and that the excess of silica found in the leaves and chaff is left there by the larger amount of sap evaporated from those parts. Silica (sand) is abundant in all soils, and is carried up by the sap, freely. A plant may be soaked and washed in a weak solution of potash, and then in one of hydrochloric acid, until all, or nearly all, of its silica and other mineral elements are removed, and it will still retain its form, texture, and strength. How then can we consider these mineral elements essential to its structure or growth?

These considerations, but a small part of what might be brought forward, are, we think, enough to vitiate the present current theories in regard to the value of this or that mineral manure. The present theories are too defective, too unreliable, to be a safe guide for practice. We are thrown back upon *experience* as our main guide. Experience teaches us that organic manures, animal and vegetable, and especially those containing much nitrogen, are those most likely to benefit growing crops. There are exceptions, as in the case of lime, potash, and gypsum ("plaster,") which on some soils are useful, and on others not. So far, experience, or a trial of them, is our only guide for using them. We shall refer to these exceptions again, in discussing their use and mode of

application; but it may be hinted here, that gypsum perhaps acts only as an absorber of ammonia; and that lime, and the other alkalies, may only serve the purpose of hastening the decay of organic materials in the soil, thus preparing them to give up their elements to the growing plants.

Blinks from a Lantern.....XVIII.

BY DIOGENES REDIVIVUS.

PLOWING.



The plowman is afield once more, turning the sod with his stout team, and deep tiller, his whip over his shoulder, and the blackbirds in the furrow responding to his whistle. What a change in his circumstances since I, Diogenes, was in the flesh in olden time.

"In ancient times, the sacred plow employed The kings and awful fathers of mankind; And some, with whom compared, your insect tribes Are but the beings of a summer day. Have held the scales of empire, ruled the storm Of mighty war; then with unwearied hand, Disdaining little delicacies, seized The plow, and greatly independent lived."

But could the present generation see the implement with which these awful fathers plowed the soil, not even their kingly state and grey beards would save them from ridicule. When I was a boy, I remember to have seen King Philip of Macedon at the plow-tail, with all his nobles looking on. The only pattern-shop of the plow in those days was in the branches of trees. Where a branch of four or five inches diameter forked, there was a plow in the rough. One branch of the fork was cut off to about a foot in length, sharpened and pointed with iron. The other branch served for the beam. A straight stick was fastened opposite to the plow nose, which was the only handle. The king employed a team of four bullocks, who were lashed to the plow with long thongs of cow-hide. The teamsters somewhat jealous of the royal invasion of the plowed field, drove fast at every stony place, and brought Philip to his knees. The peasants laughed at the sight of royalty in the dust. Not much damage, however, was done to the monarch's garments, for grass was about as plenty where the plow had been, as upon the untouched meadow.

The plow was little improved until modern times; indeed, it has been more improved in the present generation than in all previous time. Of so recent date is the perfected plow, that it has not yet been introduced into all parts of the civilized world. The Saxons used plows almost as primitive as those of ancient Greece and Rome, and not unfrequently hitched the plow to the tail of the horse. Even as late as 1634 we find the Irish Parliament passing an act against this custom. It is entitled "an Act against plowing by the taylor, and pulling the wool off living sheep," that "in many places of this kingdom, there hath been a long time used a barbarous custome of plowing, harrowing, drawing, and working with horses, mares, geldings, garrans, and colts, by the taile, whereby (besides the cruelty used to the beasts) the breed of horses is much impaired in this kingdom. And, also, divers have, and yet do use the like barbarous custome of pulling off the wool, yearly, from living sheep, instead of clipping or shearing of them."

It will hardly be believed, perhaps, that there are districts, in this country, where the plow is still a novelty, and plantations where the whole work of tillage is performed with hoes and human sinews. Yet such is the fact. Even where human sinews are quite too dear to be put to this

use, we still find the plow of a century ago, with wooden mold-board, and wrought-iron nose. Not ten years ago, one-handed plows were on sale in a neighborhood on the Hudson River, and it would not be strange if they are still in use in that staid and conservative community.

The art of plow making is far in advance of plowing in this country. We have in the implement almost every thing desirable, good material, simplicity of construction, light draft, thorough efficiency, great variety, adapted to all classes of soils, and of crops. But the best plows, some of which have been brought out within the last ten years, are not generally introduced. Reading farmers, who want to get the most work out of every dollar they spend in tools, purchase and use them. But Andrew Stokes and his friends up in Pomptown have never seen one of them in use; they have never been inside of an agricultural warehouse, and firmly believe that the cast-iron plow of twenty five years ago, is the perfection of farming tools. There are many neighborhoods similar to Pomptown, where I have not been able to find, even with the light of my lantern, any good plowing. The tillers of the soil do not seem to be guided at all by the wants of the soil, or of the crops, in their plowing. The amount of the team they can spare, the length of the chain, or the strength of the whipple-tree, the character of the plow, or the pressure of other work, any one, or all of these, decides the depth of the furrow, and the fate of the field. A miserable scratching of the dirt, four or five inches deep, is still the best plowing seen in these districts.

Though this is the fundamental work in the improvement of the soil, we have not yet attained to any definite rules, or uniform practice. The science of plowing is yet some distance in the future. Still, all the experience of our most intelligent farmers, in this matter, is not lost. Principles, by and by, will be settled, and the best mode of plowing for a given soil, and a given crop, will be well understood.

It is already pretty well established, among observing men, that a deeper stirring of the soil is called for—yet this deepening should be gradual, regulated somewhat by the thickness of the black loam, and by the use of the manure heap. Perhaps the best rule that can be given, is to bring up to the surface an inch or two of the subsoil at every successive plowing, until you have made a soil fifteen inches deep or more. The farmer who has abundant stores of muck, and a large stock of cattle to work it over, may go down more rapidly. With compost enough, almost any sub-soil can be made abundantly productive.

As to the position in which the furrow slice is to be laid, there is a pretty general sentiment in favor of varying it according to the character of the soil, and the object which the cultivator has in view. If it be a green sward, and the object is to rot the sod, it should be laid as flat as possible. Prairie sods rot soonest when it is plowed about three inches deep, and left flat. If the soil is a heavy clay loam, and the object is to expose as much of the surface as possible to the ameliorating influences of the atmosphere, the furrow slice is left at an angle of forty-five degrees. The whole field becomes a series of ridges and hollows, more than doubling the surface exposed. The rains wash down these ridges, and the frosts disintegrate them, making the whole surface more loose and friable.

To gain the same object, the plowing is frequently done in the Fall, so that the field may have the full benefit of the Winter. When it is considered that every particle is frozen and thawed, and undergoes a mechanical change, perhaps a

hundred times in the course of a winter, the influence of this usage will be better appreciated.

It is also found that the condition of the soil at the time of plowing, has a very important bearing upon the utility of the process. A heavy soil plowed just after a rain, packs into clods that remain unbroken all summer, while, a week or ten days later, it would crumble, and give free access to the rain and the atmosphere. The farmer should study the philosophy of the process going on before him as he follows the plow.

For the American Agriculturist.

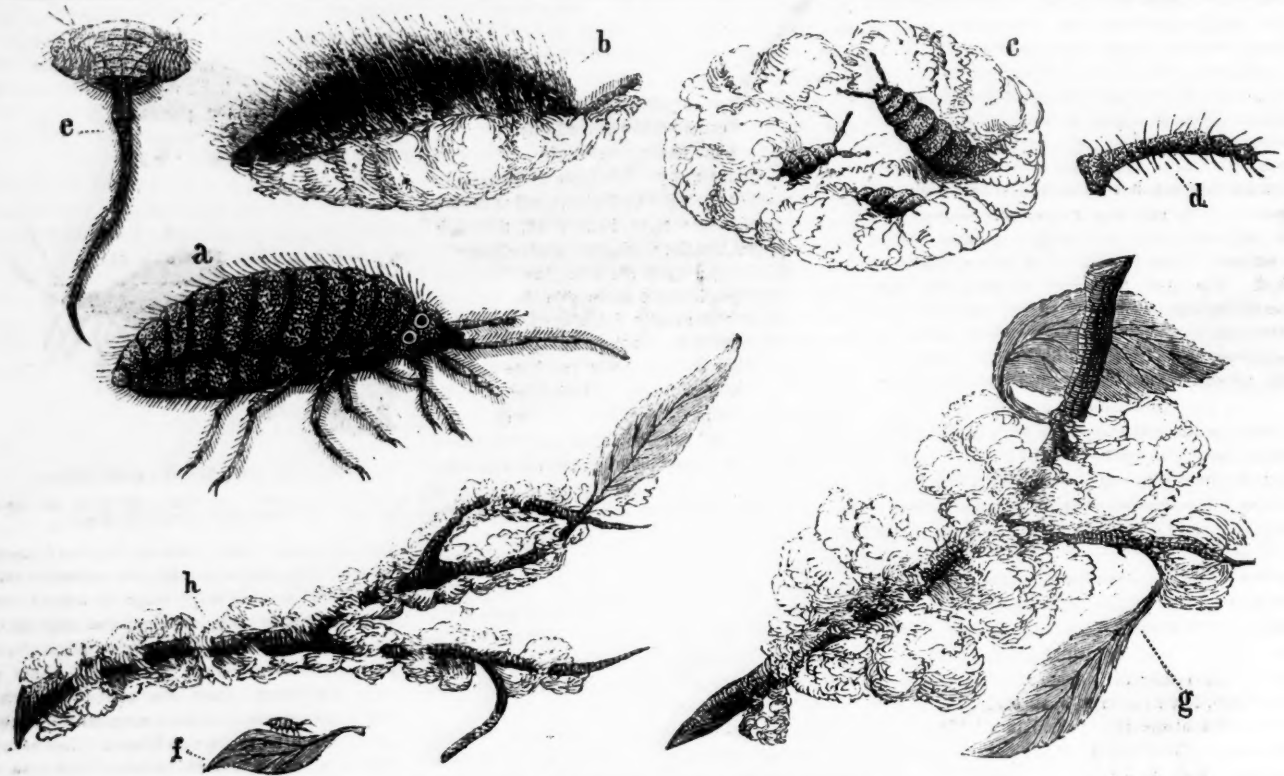
The Economy of High Manuring—Experiments with Bought Fertilizers.

A neighboring farmer who is fond of experiments, last season put stable manure and harbor mud in competition with the concentrated fertilizers. The land selected for the experiment, lay in adjoining fields, and was as nearly of the same character as possible, a gravelly loam, well adapted to corn. Both pieces consisted of several acres. The one was manured liberally with the mud and manure at the rate of about thirty cords to the acre. The other was manured with super-phosphate of lime, American guano, and Sombrero guano, applied at the time of planting, and in sufficient quantity to have given him a full crop, if the estimates of the salesman were correct. The former field was hoed but twice, and yielded eighty six bushels of corn to the acre, with a large amount of stover; making grain and fodder worth about one hundred dollars to the acre. The other piece of corn was hoed three times, and yielded only sixteen bushels of corn to the acre, with about half the amount of fodder in the other piece, making the crop worth about twenty five dollars to the acre. The bulky manure was all made upon the place; the other cost money. The one field paid a handsome profit upon the labor of cultivation; the other brought him in debt. The experiment has established him in the faith that high manuring is the only true economy in farming. Rub in the manure, good measure, pressed down, and shaken together, and the like measure of grain will come out in the harvest. SHORE FARMER.

A HIGHLY MANURED YARD.—A subscriber writing from Virginia, gives the following strong account of the condition of the door-yard of a place just purchased by him. "We took out of the porch two large two horse-loads of manure, and at least 35 loads from about the door and in the yard, consisting of ashes, night soil, old clothes, and all manner of filth imaginable. In digging, we came upon a large stove boiler buried under the accumulation of refuse." Our more thrifty readers will excuse the frequency and urgency of the appeals made in these columns to "save the manure," when told that incidents similar to the above are quite common in many districts where the *Agriculturist* is making its way. We want to "change all that."

PROPER VESSELS FOR BOILING SAP.—Sap may be kept of a light good color when boiled in iron vessels, if the kettles are cleaned frequently, and no leaves or dirt are allowed in the liquid. A large shallow pan of galvanized iron is best. Brass or copper vessels we do not like for boiling anything to be taken into the stomach. Sap, cider, and indeed almost all fruits and vegetables, contain more or less of vegetable acids, which unite with the copper, and form poisonous compounds.

A BLUNDER-BUSS.—Kissing the wrong woman.

Fig. 1.—APPLE APHIS—*Eriosoma mali*. (Highly Magnified.)

a, The large Apple Aphis with no covering—b, The Aphis emitting the cotton-like fiber—c, Young Aphides feeding in the nest—d, The Antennae, or feelers—e, Sucking Tube, magnified—f, Natural Size of Aphis—g, Branch from Gloucester (England), covered with the cottony fiber—h, Branch found in Connecticut, covered with the cottony fiber.

Microscopic Views of the Insect World. II.

BY MRS. CHARLOTTE TAYLOR.

Representative Aphidians—Aphis lanigera or American Apple Blight—Poplar Aphis—Banana Aphis—Currant and Grape Vine Aphides—Oak Aphis.

As was mentioned last month, every plant is infested by one or more varieties of Aphis. Attention is now solicited to some that threaten, by their rapid multiplication, if left unchecked, to entirely destroy our fruit. The *Aphis lanigera*, (a, fig. 1), as named by Illiger, or *Eriosoma mali* by Leach, of the genus *Eriosoma*, most erroneously called the *American Apple Blight*, demands the immediate attention of every cultivator, and of every unselfish man. It is not indigenous to this country, having been found destructive in England in 1810, and in France still earlier. Twenty years ago, I searched many orchards throughout the Eastern States, and found with difficulty a single specimen. Now, every orchard here contains them, and they are traveling West and Southwest deplorably fast.

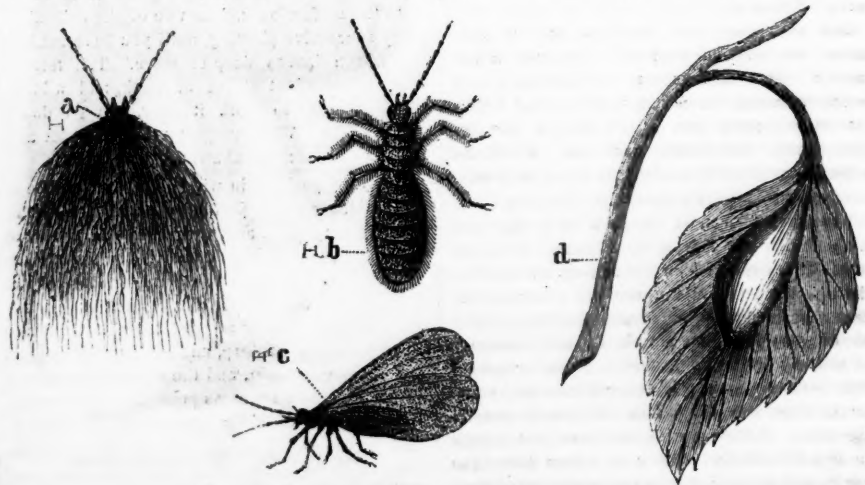
They do not thrive here as well as in England. There, when plentiful, they make the trees appear as if covered with snow, or "whitewash." The cottony substance they throw off, is not half as long in this country as in England. The warm, moist weather there, seems to be more favorable to them than our glowing, scorching sunshine and frequent long continued drouths; and myriads of them are destroyed by our Summer showers, which sometimes come down with almost tropical fury, sweeping away and drowning whole colonies at a dash. But with all these drawbacks, their increase is formidable. The illustration (g, fig. 1), represents an infested branch which grew near Gloucester in England: (h, same fig.), is from a branch obtained in Connecticut last summer. These will give an idea of their prolificness.

This Aphis generally commences its depredations as early as April. At first a hoariness may

be noticed on one side of the branches of apple trees, which increases daily until the limbs are encircled. The little creatures causing this appearance, are hatched from eggs deposited in the crevices of the bark the previous Fall. They puncture the sap-wood with their strong beaks, and as they imbibe the sap, every pore, or suture of the body ejects a saccharine fluid, which hardens in the air, flakes off, and becomes a fibrous cotton-like shred, which in time entirely envelopes them. This goes on rapidly, the young coming out from this warm nest and adding to it. Among the fibers may be seen small clear glo-

young are brought forth alive. The fiber is greasy, sticky, and disagreeable to the touch, and is sweet as sugar to the taste at first, but becomes acid with age. If left undisturbed, they rob the tree of its sap, the bark hardens, the leaves turn yellow and fall off, the infection spreads from branch to branch, and the tree dies.

Knapp, Hausmann, and other writers, state that these insects do not become winged. I have seen their wings, but missed the insect with them on, and therefore have not given an illustration. The aphides are pale green at first, darker after the second moulting; after the third, they become

Fig. 2.—POPLAR APHIS—*Eriosoma populi*.—(Highly Magnified.)

a, The Aphis as it floats in the air—b, The Young Aphis (the horizontal short line at the left shows the actual length)—c, The imago, or perfect winged insect—d, Cell or chamber of the insect on a leaf.

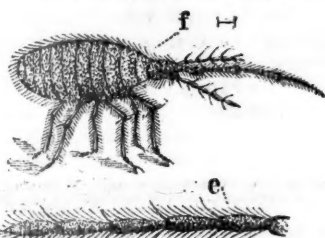
bules of congealed honey dew, supplied to form the food of the young until their first change of skin, after which they puncture for themselves, and throw off cottony fiber. These globules have been mistaken for eggs, but at this season the

dark brown, and when this skin is cast off, the wings appear. They are shorter than those of other Aphides, and more closely veined. As they approach the winged state, they cease to feed, and no longer eject the cottony fiber, but are still cov-

ered with a light white down. I had specimens successfully reared thus far, when I was unfortunately confined to my room by sickness. When I next paid them a visit, they had obtained their wings, had flown, and been speedily entrapped by a fine spider, an *Epeira fasciata*, which I had allowed to construct her nest on the branch. The web was charmingly spangled with their wings, but she had left me no specimen to reward my labors. It is only at this time they deposit eggs in the cottony envelope which is secured around them and to the branch by a yellow, glutinous fluid. Wherever this fiber is seen, the bark should be thoroughly scraped, and a piece of common yellow soap be thickly rubbed upon the branches. If any eggs remain, the young can not penetrate the soap, and they must die.

Fig. 2—POPLAR APHIS.

The specimen illustrated in fig. 2 is the "*Eriosoma populi*," or Aphis of the Poplar, to which tree it naturally belongs. But I have found it on the pear tree several years in succession, and it will increase as rapidly as the apple blight. It is now seen at the West and in the Middle States, more than at the East, but they are liable to be increased by every wind that blows. Small white balls of cotton are seen floating through the air.

Fig. 3—BANANA APHIS—*Aphis Sapientum*.

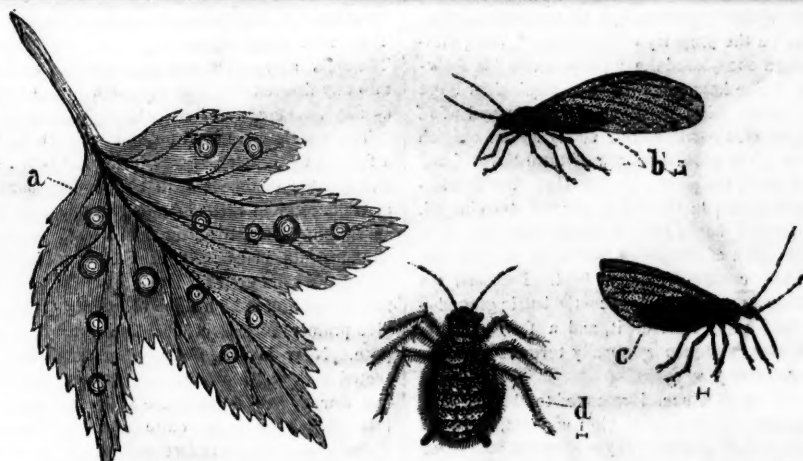
f, The Aphis magnified, the short line above shows the natural length—e, One of the Antennae.

Catch one and open it, and you will perceive this long-legged aphid, in a soft, white mantle, emigrating to a new home. Nothing is perceptible but her long antennae and part of her head. When safely landed upon a leaf, she perforates the middle vein; the sap exuding and coming in contact with the air, thickens, and becomes viscid, until a wall is formed, and a small chamber, as if by magic, rises around her, which she never leaves again. There she brings forth her young, who enlarge their home until their changes are completed, and they too emigrate; thus they spread rapidly. Their chamber has two outlets, one of which is usually closed to keep out the Syrphi and other insects that prey upon the Aphides. The infested leaves turn yellow and fall off, and a few years' repetition of this will kill the tree.

Fig. 3—BANANA APHIS—A CAUTION.

The singular looking creature at f, fig. 3, is represented here by way of caution. It is the Aphis of the Banana. It is propagated easily on the quince, and without great care to destroy the skins and stalks of the banana, in time, another enemy will be added to our already enormous catalogue of fruit destroyers. When not sucking, it keeps its beak thrust under its body, which causes it to resemble a tail protruding from its abdomen. It is very dark and small, and is generally hid under the roughest and oldest part of the main stalk of the fruit, so as to elude observation.

Fig. 4—CURRANT APHIS, and GRAPE-VINE APHIS. The ravages of one of the Aphis family are easily observed on the currant bush. Red and yellow protuberances appear on the leaves; turn one of these over, and they will prove to be chambers in which are closely packed hundreds of the "*Aphis ribis*" (Currant Aphis,) in every

Fig. 4.—CURRANT BUSH APHIS—*Aphis Ribis*. Also the GRAPE VINE APHIS—*Aphis Vinifera*.

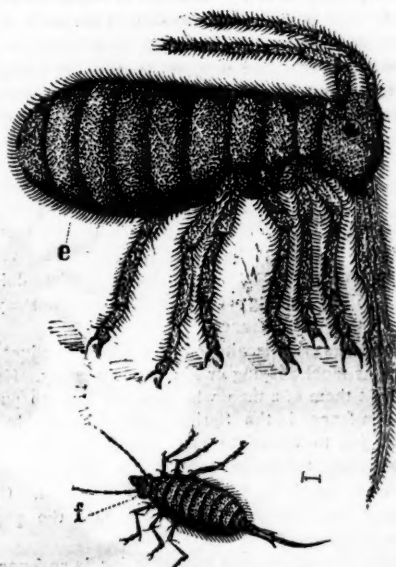
a, A leaf with the cells or chambers of the insects—b, The perfect Currant Aphis, (the short line under the insect shows the natural length)—c, The perfect Grape vine Aphis—d, Young of the Grape vine Aphis.

stage of growth up to the winged insect. These are shown at a, fig. 4. If the first infected leaf had been plucked, they could have been kept in subjection, but by their rapid increase, the bushes soon loose their green verdure, and the crop of currants is diminished at least a third, by the loss of the nourishment abstracted by these destructive little creatures.

The Aphis Vinifera, (Grape-vine Aphis), c, fig. 4, is equally destructive, puncturing the leaves, and causing the young grapes to harden, dry up, and turn black. Their habits and changes are the same as those of the Aphis Rosae, (described on page 80,) except that the eggs are deposited close down in the joints of the vine. They are imperceptible without a magnifier, but can be kept under control by rubbing the joints with common hard soap in the Fall after they have disappeared.

Fig. 5—OAK APHIS.

The last one here shown, "*Aphis Quercus*" (Oak Aphis), e, fig. 5, is a singularly ugly creature, the

Fig. 5.—OAK APHIS—*Aphis Quercus*

e, Aphis highly magnified—f, The Aphis at rest with the beak under its body. (The short mark shows its natural length.)

largest I believe of known Aphides. On a large scale he would be truly terrific. You can scarcely see an oak leaf in Summer, but a dozen or more of these pigmy monsters are hard at work upon it with their strong beaks, which are used in a very curious manner. The insect crouches

down on his awkward, ungainly legs, and inserts the sucker lengthwise into the vein instead of down into it. When they walk, which is seldom, they totter sluggishly along, carrying that long sucker bent under the body, giving it a resemblance to a tail. Their changes are the same as those already described. They are pale green when young, afterwards becoming deep brown, with a lighter shade on the legs and beak. They vary in color with the age and health of the tree. I have seen them dark red, and of a golden yellow hue. They are most numerous in dense woods away from the sea-board, where they make sad havoc upon the young oaks.

Every tree of the forest, every bush, flower, and weed, has its life suckers always at work to keep down redundant vegetation. I have no doubt that the brilliancy and beauty of our Autumnal woods are owing, in a great measure, to these little creatures throwing out the acids from their bodies, which, coming in contact with the sap when the cold arrests its circulation, changes the green color of the leaf, and thus paints for us a scene more gorgeous than artist ever imagined.

In observing these little creatures, there is great pleasure afforded by the assurance given of the watchfulness and beneficence of a Supreme Power ever present around us. It seems impossible for one to contemplate these mere atoms, on a warm Summer's day reveling, gamboling, rolling over each other, kicking out their thread-like legs while they hang suspended in the air only by their beaks, and sprawling with delight in the sun's beams—without feeling conscious that He who made them and us, intends happiness to all.

For the American Agriculturist.

A Fight with Red Spiders.—*Acarus telarius*.

Long and determined has been the conflict. I have fought him with water thrown in fierce and copious jet, through pipe and syringe. I have battled him with brimstone, and have pursued him with solutions of whale-oil soap and nux vomica. I have applied lime and white lead in his lurking places. I have been early and late on his track. Have steamed him and submerged him in pools of water, nay I have buried him along with the plants which he most did love, for a week at a time, and kept the earth (his grave as I fondly hoped) saturated with water. I nearly killed the plant, but not the spider. The plant was washed clean after its resurrection and kept away from all its fellows. In about a week afterward, the flame colored wretches were feasting on the vitals of the devoted bush again, as hearty as ever.

About twenty years since, I constructed a greenhouse, on the property of the Sailors' Snug Harbor, then considered the "ultima thule" of New-York. The house had not been stocked for more than a year, when the sombre and glossy leaf of the Camellia assumed the sickly hue of reddish brown. The gloss disappeared from the leaf, and beauty from the plant. It was then that hostilities commenced; the war is not yet terminated. I consulted books and floriculturists, and laid out the plan of campaign agreeably to their advice, but came off second best. Between the spider and myself, the plants—the battle ground—had but a sorry time of it, and a few years of precarious existence generally terminated their unhappy lives.

A few years since, I removed to the country, and looked forward to a glorious rest, both for myself and my plants. My stock consisted chiefly of Camellias. I had them all carefully washed, and then distributed over the grassy lawn. Now, I thought, my pets are safe from every fiery foe. One hazy, sultry, Summer morning, I took a saunter among my plants, to see how country life agreed with them. I was pleased to observe many vigorous shoots with the old gloss and healthy green upon the new-born leaves. "No spider now," I thought; "they're whipped, overthrown, exterminated!" My rejoicing, however, was of short duration. I espied some suspicious little specs, here and there. "What can they be?" was the question which naturally occurred to my mind. "Perhaps a little dirt carelessly tossed upon the foliage by romping children." Still, I will examine. They were quite still, no stir, "all right," says I. But I'll just poke the specs and imagine I am killing spiders. It will give me such pleasure as is enjoyed by the old soldier when he again recites the tale of battles he has fought. Judge of my astonishment, when the specs took life and walked off.

Since that rude awakening, I have put up large plant structures on the outskirts of the town, on a high and healthy location. My houses are stocked with a variety of plants, grape vines, etc. My gardener is ever busily fighting the old enemy, under my leadership, combined with his long experience in England and America, yet we can not subdue the hateful foe. Rout him out one week, the next is pretty sure to find him at his post again; pepper him with sulphur, strew it in every direction, over pipe and stage, still he survives.

And now gentlemen, editors, or contributors to the *Agriculturist*, can you aid me in my afflictions? Is there any better or surer method than such as those I have adopted? If so, I should most gladly learn it through your useful columns. I should gladly hear of that deadly, venomous remedy that would destroy the disease, yet leave the patient alive.

ENQUIRE.

Salt Marsh Sods for a Fence.

It may not be generally known along the seaboard, where wood is becoming scarce and worked stone is expensive, that sods from the marsh form a very good and durable fence, and a beautiful facing for the slopes of terraces. There are three kinds of grass found upon our salt marshes, all forming a tough sod, a foot or more in thickness. The first is a coarse sedge, found nearest the water. The second is known as "fox marsh," and is very fine and thick, and of a light green tinge. The "black marsh" is the third variety, growing on higher land, that is only flowed in the highest tides. It is a much darker and richer green than the others. This forms a sod of great strength, elasticity, and durability,

and when dry, is very light and easily transported. This is the most desirable variety for fencing. The sods may be cut with a common hay knife into any desired shape or size, and laid up with as much accuracy as hewn stone.

These sods were used for building a parapet to a fort, at Gloucester, Mass., during the year 1812, and in other instances at that time. The parapet at Gloucester in 1850 remained in excellent preservation, decidedly better than rough masonry would in its place. At Fort Adams, Newport, they have been used for facing over a thousand feet of the breast-high slope of battery crest, and give promise of perfect adaptation to this purpose. Near Mystic, Conn., a battery was protected with walls of this sod, thrown up in the last war, and these walls are still remaining, unless they have been quite recently removed. These marsh turfs are frequently used for fences and cottage walls in Ireland and other parts of Europe. In the moist climate of that island it remains green, and forms walls of great beauty. The sods may be put up perpendicularly, but they are more likely to stand, when having an inclination of about one foot to three in height. If the marsh grass does not flourish, other kinds of grass seed used for lawns, may be sown upon the terrace. If a brown wall is preferred, the sides of the sods instead of the surface should be exposed for the face of the terrace. The ease with which they are cut, and their durability, make them an excellent material for building the walls of sheds and hovels for cattle. They also form a very neat border for walks, in gardens, and are much less troublesome than common grass.

SEA SHORE.

For the American Agriculturist.

Vicious Cattle.

My neighbor Jones has a yoke of handsome grade Devons, that would be worth two hundred and fifty dollars if they were not breachy. A better pair of cattle for work can not be found in town. But he can not keep them in any pasture upon his farm, though his fences are much better than the average of our farmers. Last Summer, they tore down a seven rail fence, and got into his rye, just before it was ready for cutting, and destroyed ten dollars' worth of grain in a single night. He found them so uncontrollable in the pasture, that he had to put them in the stable for the rest of the season. He could not sell those oxen for a hundred and fifty dollars to any man who knew their character for jumping. This vicious propensity costs him at least a hundred dollars, to say nothing of the crops they destroy when they get a chance.

And this trick is altogether a result of education, as much as lying or stealing is in a boy. He bought them of a man who was too lazy to put up his fences in the Spring, and uniformly has that job to attend to all through the season. Sometimes the cattle were in the oats, sometimes in the clover, and again in the corn. Of course, they had to be driven out, and the gap was temporarily stopped.

This vice of jumping, and throwing down fence, is, almost without exception, taught to cattle when they are young, by careless and lazy owners. Neglected fences are soon thrown down as the cattle rub against them, without any design on their part. They can not be blamed for their rubbing against every fence corner, for it is their nature. If the fence falls, it is their first lesson, and they walk over triumphantly into the better feed in the next lot. Any animal of good sense puts the rubbing and the good bite together, and

the next tempting feed over a poor fence creates a great itching of the skin, and suggests rubbing as the fence falls, and this is the second lesson. If the boys are too lazy to let down all the bars so that the animals are compelled to jump over, they have a third lesson. This is generally enough to complete the education; but if the farmer gets desperate and puts on an additional rail every time they make a breach in the fence, the ambition of the animal generally rises with the height of the fence, and he becomes an accomplished vaulter, that no fences can restrain. When once the lesson is taught, it becomes a permanent characteristic, and lowers the value of the animal for all purposes except beef. It is worth while to bear this in mind at this season, when fences are repaired. The pastures especially, that are designed for young cattle should be thoroughly secured. The want of a half day's work in the right spot, may be hundreds of dollars damage to the young herd.

CONNECTICUT.

An Experienced Butter Maker's Method.

To the Editor of the American Agriculturist:

My experience for many years in a large dairy gives me some practical knowledge of what constitutes a good article of butter, and perhaps I can not better explain the principle of making it, than by giving the regular method pursued by my family. In the Spring, when our cows are coming in, we keep them entirely from the horse litter or stable, which would give the milk an unpleasant flavor, and feed them a little yellow corn, carrots or cornstalks, which improve the color and quality of the butter. We are very careful to strip the cows as clean as possible, and strain the milk in the cellar before it cools, in order that the cream may rise undisturbed. We use twelve-quart tin pails instead of pans, finding them more convenient. If the weather is freezing cold, we add about one teacupful of buttermilk to each pail, strain it full, and let it stand until the cream rises; then take enough for a churning to an upper room where fire is kept most of the time, and let it become loppered, at which time it is ready for the churn. We put about 24 gallons of milk in a 60 gallon churn, and in churning, have the dash rise above the milk, and descend to the bottom of the churn, otherwise there is a deficiency in churning all the milk effectually. We use no thermometer, but suppose the milk to be at about 60° or 65° (Fahrenheit). We can tell by the sound if the milk is tempered right, it will have a clear ring. We use horse power, and churn from 60 to 80 minutes. When the churning is nearly done, (which is told by the butter rising in separate specks upon the dash) we put in about 5 gallons of water, continue to churn a few minutes longer, when the butter is ready to be taken out. It is then washed in 2 or 3 different waters, salted, and put away to stand about two hours, for the salt to dissolve. It is then worked a few minutes at a time, several times during the day. When the brine becomes clear, it is packed in tubs holding about 40 lbs., and sent to the city. This is our method of making butter until about the middle of May.

The means used to secure the thickening of the milk (lopping), depend on the weather. When it is mild, we strain the pails half full in the morning, and then fill them at night with warm milk. Again, if the weather is still warmer, we fill the pails full. Buttermilk is used only in cold weather. If a stove can be used in the cellar, it is preferable to any other mode for thickening milk.

About the middle of May, our cows are generally all in, and we commence the Summer dairy

We have about 50 cows, and from 5 to 7 persons who do the milking, and one who attends to straining the milk as fast as brought to the milk-bench adjoining the yard. Usually about 9 quarts are strained in each pail. If, however, the weather is cool, more is added, if warm, less. Our cellar is kept quite dark, and free from any current of air. We think too much light bleaches the cream, and too much air dries its surface. When the weather becomes warm, ice is used to cool the butter fit for working, which is quite necessary, as it is hardly possible to work soft butter to any advantage. We are quite careful when using the ladle, not to draw it over the surface of the butter, but to extract the buttermilk by gashing and pressing. We think the drawing of the ladle on the butter, creates an oily surface, and changes its solidity, which causes it to become rancid. Ashton salt is used, about one ounce to the pound of butter, yet we have discovered a remarkable difference in what is called Ashton salt, some dissolving easily, some otherwise—I have sometimes thought that Ashton sacks were filled with Salina salt. Our firkins are filled with water, and soaked about 24 hours before packing in them. When filled within an inch of the top, we spread a clean cloth on it and put on half an inch or more of salt, then make a brine so strong that no more salt will dissolve in it, and pour the firkin full. We think brine can not be made strong enough to prevent the top of the butter from changing its color and becoming rather light upon the surface, but salt and brine united, will keep the butter without change.

CHEMUNG COUNTY.

Cultivation of the Sweet Potato.

In a fine engraving, in our sanctum, we have at least a half bushel of this esculent spread upon a rustic table, and General Marion is inviting a British officer to dine with him. Sambo has just taken them from the glowing coals, and from appearances, sweet potatoes roasted, will constitute all the courses of the sumptuous repast. It is a universal crop of the South, growing as luxuriantly in the tobacco fields of Virginia, and in the cotton fields of the Carolinas, as upon the fat sugar lands of Louisiana and Texas. It is found in almost every mansion and cabin south of the Potomac, and in later years it is invading the North, and can be cultivated economically in the latitude of this city, and as a garden product in every State of the Union. It is a highly nutritious and palatable vegetable, and though less in aggregate value than several other crops, it would be missed as greatly as any crop in the country.

The sweet potato is said to be a native of the South, and the facility with which it is grown in almost all soils, and under all circumstances, favors this supposition. All around the Mexican Gulf it lives in the ground without protection through the winter, and the article is to be seen in the New-Orleans market in the greatest abundance throughout the year. The cultivation in the Southern States is generally of the most careless kind, without manure, and with much less tillage than is bestowed upon cotton, corn, or tobacco. It is not a crop relied upon for sale, and is therefore apt to be neglected. Yet under this chance cultivation the yield is generous, and a large supply of food for man and beast, is produced with very little labor. In the cotton and sugar regions, the aim of the planter is to produce just enough for home consumption. It is only in the vicinity of cities and seaports, that they are grown for the northern market to any considerable extent. The last census shows a

total product of thirty-eight millions of bushels of sweet potatoes for the whole country. With a larger market, the crop might be easily increased to any desirable extent.

THE PRESERVATION OF SEED.—During the winter this is one of the greatest difficulties northern cultivators have to contend with. In the South it is easily managed. A clump or stack is made of them out of doors, very much as an English farmer would stack up his turnips. Any convenient place is selected in the garden, or in some enclosure to keep off cattle, and hogs. If the spot is sandy or otherwise well drained, it is all the better. A platform is raised about a foot high, of earth, or boards, as may be convenient. Upon this the pile of tubers is heaped in the shape of a cone, or pyramid, as suits the fancy of the overseer. When this is raised four or five feet high, it is covered with boards, or thatched with straw, or pine leaves, or any convenient litter, and then covered with dirt a few inches in thickness. A small hole in the top gives ventilation. The more careful planters construct a rude shed or hovel over the heaps to keep off the rain.

But in our cold climate, where the frosts of November spoil every unprotected tuber, it requires considerable skill to carry them through the winter. The seed usually selected, is the small refuse tubers that are not fit for market, a half inch in diameter and less. The desideratum is a uniform low temperature, say between forty and fifty degrees, and perfect dryness. A common method is to pack them in chaff or very dry saw dust, and keep them in the kitchen, or where a fire is kept up all the while.—We once packed them in a mixture of dry plaster and wheat chaff, and put them in a chamber warmed by the kitchen stove. The plaster absorbed any decaying spots, and about three-fourths of the quantity put in, came out sound. We have also packed them in dry coal ashes, and kept them in the furnace room in the cellar. These kept very well. It is a matter of a good deal of importance, that the tubers should be fresh dug and unbruised, when they are packed away for the winter.

TO GET SETS FOR PLANTING.—In the South the potatoes may be planted in the hill, like our Irish potatoes. But with us they would either rot under this treatment, or come forward quite too late to make a crop. If only a few hills are wanted, the seed may be put in a small box in the kitchen window, or any other convenient warm place. A box two feet square will start a large number of sets. [Last year we raised a fine lot of sweet potatoes from plants obtained at a small cost from a green-house; and when such plants are easily obtained, it is cheaper to buy than to raise them, if only a hundred or so are wanted.]

But if they are to be grown on a larger scale, a hot-bed should be prepared for them, from the middle to the last of April, according to latitude. The edges of the bed may be made with any convenient rough boards, say four feet in width, fifteen inches in depth, and long enough to hold the desired quantity of potatoes. Fill up the inclosed space with horse-manure in a fermenting state, and tread down to about ten inches in thickness, and cover with three inches of sandy loam. If sand is not in the garden loam in good quantity, it should be added, as it is a great protection against the rotting of the potatoes. After this is raked over, and all the fine lumps broken, put on the tubers in rows about an inch apart, and cover with two inches of sandy loam. The hot-bed may be covered with glass, or with fine straw, as suits the circumstances of the farmer. If the latter, the litter should be very fine, and about six inches in thickness, and if rains come

on, boards should be laid over to keep the litter dry.

The bed should be examined daily by uncovering a small place and thrusting in the hand to see if the temperature is too high. The object is to keep up a gentle heat that will promote vegetation. If too warm, uncover during the day, and cover up again at night. In about two weeks the bed, if properly managed, will begin to give signs of the shooting plants. But this kind of protection is much more difficult to manage than glass, and every cultivator who lives within reach of a carpenter, should have sashes for his hot-bed. There is much less danger of overheating, and the direct rays of the sun hasten the sprouting of the plants. When the shoots are up three or four inches high, they are ready to transplant.

THE PREPARATION OF THE SOIL.—However this crop may flourish upon its native soil with little attention, it will not pay at the North, unless it have extra manure and cultivation. The most favorable soil is a sandy loam, the sand largely predominating, with a good southern exposure. After thorough plowing and manuring broadcast with an abundant supply of yard compost, the rows should be marked off four feet apart, and the hills be formed three to four feet asunder. The hills should be raised about a foot high, with a shovelful of cow manure in the middle. The most of this work of hilling can be done with the plow, by ridging the land, and then cutting the ridges at right angles. Old cultivators recommend the manure of neat stock as a specific fertilizer for this crop.

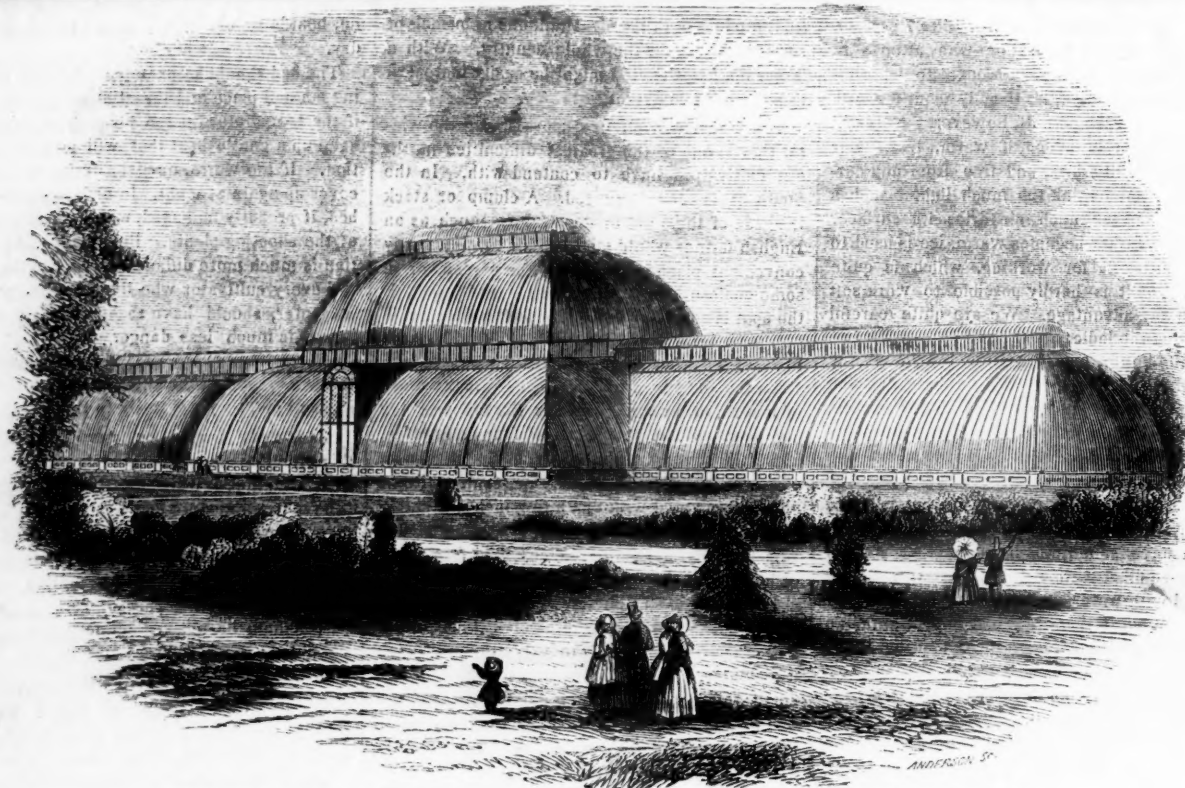
TRANSPLANTING.—The young plants may be removed from the tuber by the thumb nail, without disturbing it in the bed. A succession of young plants may be taken at intervals of about a week, so long as they are wanted for planting. The plants are hardy, and about as likely to live as cabbage plants after the third week in May. As a rule, they will grow when corn will.

AFTER TREATMENT.—In hoeing, draw the dirt up toward the plant until the hill is eighteen inches to two feet high. This gives them the full benefit of the air and sun during the Summer. As the vines commence running, they should be examined once in two weeks, to see that they do not strike roots at the joints. If left undisturbed, they begin to form tubers, and draw away nourishment from those in the hill. The vines are rampant growers, and, in congenial soil and climate, will cover the whole ground.

GATHERING THE CROP.—This will depend somewhat upon location. As a rule they will grow until the frost kills the vines, and they should be gathered immediately after the first frost. If suffered to remain after this, the delicate flavor of the potato is injured. They should be housed immediately, and kept in a cool dry place until they are consumed.

As a garden vegetable, in places remote from seaports, we think it will pay to raise the sweet potato. The flavor is not, perhaps, quite equal to that of the Southern grown article, though, as this is a matter of taste, there would be a difference of opinion. If well cooked, we will warrant that no housekeeper will find them a drug upon the table. The vine is one of the most beautiful of all trailing plants, and might worthily have a place in the flower border.

TO REPEL INSECTS.—An English journal says that leaves of the common Elder bush scattered among cucumber and melon vines, will keep off the bugs which infest them. Has any one in this country tried it? And if so, with what success?



THE GREAT PALM-HOUSE AND CONSERVATORY AT KEW GARDENS.

Visit to the Royal Gardens at Kew.

"Where and what are these gardens? Tell us about them; it's just the talk for this weather."

Well, they are public botanic gardens at Kew, a village on the river Thames, 7 miles from London, England. They are maintained by the government, and contain the finest collection of plants in the world. Within the premises are a series of ornamental buildings, in classic and Chinese styles, many of which were erected by Sir Wm. Chambers, about the year 1760; here, also, are all the known trees, shrubs, and plants of the globe, which will grow out of doors in that climate, and for those too tender, glass houses of great height and extent have been built. They also contain ponds for fish and water-fowl, with a well arranged Geographical and Natural Museum. All these things are not collected and maintained for private gratification; they are open to the well behaving public, and as Dr. Lindley observes, "are designed chiefly to promote the advancement of science and the arts, of medicine, commerce, agriculture, horticulture, and various branches of manufactures." The government employs plant collectors in every part of the world, who send home roots, seeds, and specimens of woods and plants. This garden is but a huge Encyclopedia, printed with facts, instead of words!

Now, let us go in, and take a hasty look: our time is very short. What a magnificent entrance-way! These pillars and gates of iron are grand enough for a royal residence. Look here to the left, you conifer-loving man, walk through the old Arboretum. See this Cedar of Lebanon, its gigantic branches cover full 200 feet of ground. Yonder are some of the newer evergreens. This Deodar cedar is one of the finest. Here are some Araucarias in tubs, out for a Summer airing: it's a pity they are not hardy; and so of these Himalayan and Douglas' spruces. But here are some robust fellows, the Corsican pine, the Austrian and Bhotan pines, and the *Pinus pumilio*, of Carniola, sprawling and odd. That Scrub pine, there,

reminds you of Yankee land! Here are Turkey oaks, the Oriental Plane tree, and Cork tree.

Let us push on to the Temple of the Sun. As we pass this old Cedar of Lebanon by its side, hear what Sir Wm. Hooker, our guide, says: "There are more Lebanon Cedars now in England, than in all the Lebanon mountains put together." Here is the Architectural Conservatory, and yonder (see picture) is the great *Palm-House*, looking like a gigantic bubble. A miniature lake has been formed on one side of the building. The house is entirely of glass, set in iron, brick, and stone. It has a central hall and two wings: the center 100 feet wide, and 66 feet high, the wings 50 feet wide and 30 feet high. It requires 12 furnaces to warm its boilers in Winter; in Summer four keep things going. The hot water pipes coiled about it, are five miles long! The whole building, we believe, cost about \$200,000.

But here, before we go in, let us look at this specimen of ribbon-gardening, or "living tapestry," as somebody calls it. The yellow consists of calceolarias, the pink and scarlet of dwarf geraniums, the blue of campanulas and alyssum, the lavender of ageratum Mexicanum; the border is fringed with verbenas of various colors. —worsted work for ladies to beat, if they can!

Now, take a peep into this Glass-House. Here, just inside the door, are both the black and green Tea shrubs, from each of which, they say, the Chinese contrive to make either kind at pleasure. Accommodating fellows! Yonder, is an old tree-pæony, remarkable only for being the original plant brought from China by Sir Joseph Banks, and is, therefore, the great or great-great-grand-mother of most of the tree-pæonies in the western world. Off with your hats, and down on your knees, ye nurserymen, for this plant has been the means of lining your pockets with many a dollar! Push on. What's this? A plant in motion! the *Desmodium girans*, or moving-plant, which, from no perceptible cause, twists and twitches two of its leaflets night and day without cessation. And there, under a glass, is the Amer-

ican Fly-trap. As soon as an insect lights upon the green bristle of the leaf, the two lobes close upon him, and hold him till he dies; then they open, and wait for another victim. It is said that there were gigantic plants once on this globe: what, if there were also fly traps big enough to catch a man! Notice this Caricature plant: the leaves green, but marked with yellow blotches, making an outline of the human face divine—more or less! Here is one, says Dr. Hooker, like Lord Brougham, and there is one said to resemble Mrs. Caudle. Where's Mrs. Partington! Go on, now. Here we have the queen of plants, the *Victoria regia* lily, swimming in a tank alone, the water kept as warm as that of a tropical river.

INSIDE OF THE PALM-HOUSE.

But another look at the great Palm-House, for growing trees and plants, mostly of the palm tribe. Well is it called "the glory of Kew Garden." One can here get some little idea of a tropical forest. From among these fern leaves a tiger might very naturally rush out; huge serpents might climb these cocoa-nut palms. Here are banana trees with fruit hanging on them in abundance; and the vegetable Ivory palm, whose nuts are molded into so many ornamental objects; and the Elephant's Foot, from South Africa, a tree whose gigantic root-stock resembles an elephant's foot. There is the Mango-tree, with its fruit on the end of a long stalk; and there is the Chocolate tree, with flowers on the thickest part of its woody trunk.

Now we come to a section where the motto must be, "Touch not, taste not, handle not." That plant, over there on a high shelf, is the "Dumb Cane," which palsies the lips and tongue of those who taste it. A few years ago another very poisonous plant, the *Jatropha wrens*, stood here, but has since been killed, on account of the many accidents happening from it. Now, ascend this spiral stair case, and look down, thirty feet or more, upon the ferns and palms, these princes of the vegetable kingdom. Tropical creepers

clamber about the iron pillars and ornamental work of the stairway, covering it to the very top; among which, note especially the *Aristolochia*, from South America, whose huge flowers the children there often wear as bonnets!

Now, enter the Museum, the particular hobby of the learned Director. The Guide-book informs us that this "is designed to receive all kinds of fruits and seeds, gums, tannins, resins, dye-stuffs, starches, oils, textile fabrics, sections of woods, materials for basket-work, all straws and grasses, and all curious vegetable products, especially those which are useful in the arts, in medicine, and in domestic economy." Another authority adds: "it is designed to receive whatever is serviceable to the botanist, merchant, manufacturer, chemist, druggist, carpenter, cabinet maker, and artisans of every description."

Here, we see the fruit of the cannon-ball tree, from Guiana, which are odd looking globes, used more for drinking-cups than for warlike purposes. Near by is the Towel-gourd, from the tropics, used both as wadding for guns, and as a sponge. There is a native shoe-blackening, a flower which when crushed, is used by the Chinese to polish their shoes. This is a bottle of milk from the cow-tree of Venezuela. Wonder if it is sweet? That Sacred Bean, of the Egyptians, looks in its dried state, says one, like a circular piece of over-baked pudding, stuck full of hazel nuts! Here we have the fruit and bark of the famous Upas-tree, fabulously called poisonous.

Over yonder, are candle-wicks from China, made out of the pith of a plant; and near it are seeds of the Chinese tallow-plant, with candles manufactured from it. Here we come to the "Old Man's Eye-brow-tea," done up in bundles; this sort does not reach the American market.

Further on, are dried specimens of some *extreme* plants, such as the *Rhododendron nivale*, the most alpine shrub in the world. Then, just outside of this glass-house, you will see the most southern tree, viz.: the Evergreen beech, from Terra del Fuego. Dr. Hooker here turns to tell us that this beech as growing in a warm, sheltered valley, is large enough to make canoes out of the trunk, while the same on the exposed heights of Hermit island become so dwarfed and stunted, and compact, that the traveler is able literally to walk on the tops of them! These trees suffer more from the heat of England, than the Winter's wet and cold. Now we come to something familiar to Yankee eyes; specimens of Sugar maple wood, with little cakes of maple sugar, looking like bar-soap. And hard by, are American clothes-pins, made from the same wood!

Just here, the eyes of our director began to twinkle, and he went on to say that he once sent a basket of Osage Oranges to the Queen, as a curiosity. The Queen, on visiting Kew not long after, tapped him with her fan, and rallied him for sending her such hard and indigestible fruit for the table! "Why, the servant cut one and handed it to me, but sir, it was really uneatable!" As the Osage Orange does not ripen in the English climate, her ignorance was excusable.

Push on; we have no time to waste. Here is the bulrush, from Egypt, the same sort as the basket was made of for the infant Moses. Those are specimens of woods injured by insects and bad pruning. Here, are beautiful models in wax, of fruits, flowers, gourds, etc., including the *Jaca*, or Jack, the largest known eatable fruit, and the *Rafflesia Arnoldi*, the largest known flower. There is wood from the Gutta Percha tree, and a bottle of its juice, also several articles made from it. This is a specimen of the Monkey-pot family. The lidless capsule is used for catching

monkeys. Sugar is put on the outer edge of the flower, which enlarges inside, and when the animal has put on his paw to get the sugar, it is drawn in and he can't get it out, and the huge plant so clogs him that he is easily captured. Over yonder is the American Poke-Weed, which the Europeans raise on purpose to color their artificial wines a fine red, to please American eyes!

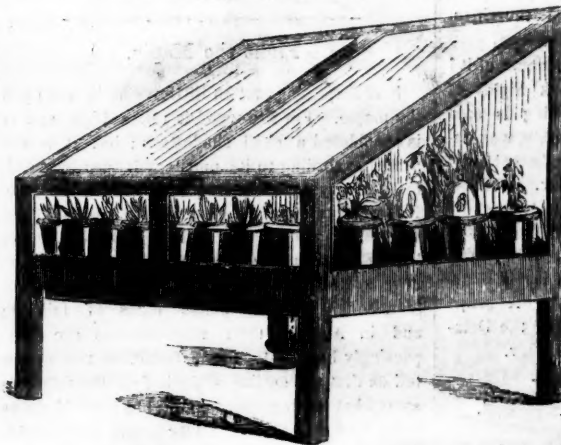


Fig. 1.

Waltonian Cases for Propagating or Starting Plants, Seeds, etc.

Any one at all experienced in striking cuttings, knows the beneficial effects of a well-regulated bottom heat to make them push out roots freely. A few trees and shrubs, such as the willow, currant, grape, etc., will root with tolerable success when planted in a mellow, natural soil; but with the more difficult roses, camellias, weigelas, fuchsias, and many common plants, more care and a bottom heat are beneficial if not absolutely required. A gentle hot-bed is often made for the purpose, and frequently answers very well, although quite inferior to the cases now referred to.

The Waltonian cases are named after Mr. Walton, an English horticulturist of some note, who first constructed them. They are not intended as permanent cases in which to grow plants, being used only to start cuttings and seeds. They are so easy of construction that any carpenter can make one at little cost, and the artificial heat is kept up at trifling expense. The frame is of wood, which may be of common material when intended for a green-house, or of fine wood, varnished or painted, if to stand in the

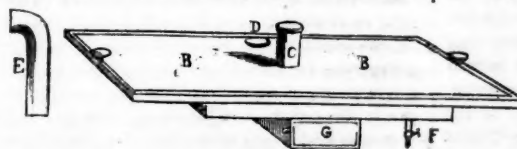


Fig. 2.

drawing-room or library. The sides, ends, and top, are of glass. As they are heated by a burning lamp, it is not advisable to make them of large size, but to construct two or three, or more, if considerable propagating space is desired.

The case from which our engravings are taken, is three feet long and eighteen inches in width, with an inside height of ten inches in front, and fourteen inches at the back. We should prefer one, four feet in length, two feet in width, twelve inches high in front, and eighteen inches at the back, using two lamps if one be not sufficient. The bottom of the frame may stand on legs about one foot above the floor.

In fig. 2, B, B, is the bottom shelf made of zinc,

in the form of a box, about one inch in depth. This inside space is kept filled with moist sand. On the under side of the shelf is the square boiler, also made of zinc, about two inches deep, with a tube, C, projecting up through the shelf, by which the boiler is filled. It is also fitted with a cap so as to retain or emit the steam as may be desired. Beneath this water tank is seen the fire-box or lantern, made of perforated zinc to admit air, and having a glass sliding door, G, through which to observe whether the lamp is burning or not. The fire-box, or furnace as we may call it, opens into the shelf at D, to which is attached the flue E. This passes out at the side, or is carried through the sash at the top of the frame. Having everything prepared, raise the upper sashes upon their hinges, fill the boiler with warm water, set in the pots of prepared cuttings, or seeds, let down the sash and light the lamp, or lamps, under the boiler, and the only further care necessary is to keep the boiler and lamp filled, moistening the sand in the bottom board or tray occasionally. The water can be drawn from the

boiler at any time by means of the faucet F, and when it needs replenishing, warm water should be used. By hanging a thermometer inside of the case, the temperature can be observed at any time, and regulated by increasing or diminishing the flame of the lamp. From 75° to 80° Fahrenheit, is the most desirable temperature. A vapor bath can be given, by removing the cap from the tube C. Of course it will be necessary to raise the sashes and admit fresh air occasionally, especially when hardening off the plants for transplanting out. The pots can be taken out, examined, and the plants watered whenever needful.

Raising the Locust from Seed.

In response to the inquiries of Ezra S. Berckley, Somerset Co., Pa., and others, we answer: For the best success, gather the seed as soon as ripe, and place immediately in boxes of earth until early Spring, or sow at once in the ground. A portion will usually grow the first season, and more the second, if left undisturbed. Take a hint from nature, and only cover half an inch or so deep, using black earth or scrapings from the woods. Seed may also be obtained at all times from seed dealers, and a considerable portion will usually grow, but not always. As above stated, a portion, and sometimes all of the seed will remain in the ground, and start up the following Spring. Perhaps the better plan, in ordinary cases, is to plant the seed as soon as ripe, but where it is desired, Spring planting may be adopted. Locust trees may be transplanted from the forest or nursery, like other trees. They delight most in a rich, moist, but not wet soil.

Grape Vines from Cuttings.

If any one has not a hot-bed to propagate vines from single eyes, we would advise him to try cuttings. Choose well ripened wood, and cut it into pieces with three buds on each. Two buds are set below the surface, so that if one of them fails to emit roots, the other may do so. Prepare a good, well spaded patch of ground, make

trenches a foot deep, by drawing a garden-line from one side of the patch to the other; sprinkle an inch or more of sand at the bottom of the trenches, and then lay in the cuttings obliquely, and fill up with good soil. The sand will facilitate the formation of roots. The cuttings should be set so deep as to leave not more than an inch with one bud above ground. If the Summer proves to be a dry one, the ground should be watered and also be mulched around the vines.

THE TAYLOR GRAPE.—What has become of it? We heard certain good judges speak highly of this grape last Fall, but of late nothing is said about it. It hailed from Cleveland, Ohio, was declared to be an undoubted native, perfectly hardy, and of surpassing excellence. Mr. Thomas Meehan, of Germantown, affirmed it to be "decidedly the best native grape of some seventy kinds which he had tasted last year, (1859.) The leading members of the Philadelphia Horticultural Society held the same opinion." A grape which promises to stand by the side of the Delaware and Rebecca, should be looked after.

Even a Boy can make a Hot-Bed.

Most people have an idea that a hot-bed is so difficult of construction as to be beyond their own skill or circumstances. But this is altogether a mistake. A hot-bed is within the reach of every one who can get a few bushels of yard manure, and some rough boards. In its simplest form, a hot-bed consists of nothing more than a foot or two in depth of fermenting yard manure, covered over with half a foot of good soil upon which to sow seeds, or set out plants. Usually there is to be placed around and over this, some sort of covering to retain the heat produced within, and shut out cold. The general custom is to make the box with boards, and cover it with sash set slanting towards the South. The covering may be of cloth instead of glass. C. B. Higgins, a youth of sixteen, living in Delaware, writes to the *Agriculturist* as follows: Having read the description in Vol. XVIII, page 83, (March No., 1859,) I determined to try to make one. I built a board frame six feet long and four feet wide, and stretched cotton cloth upon it, brushed a good coat of oil upon it, and let it dry until it was hard and firm. I then made a large box, without any bottom, set it over a pile of manure two and a half feet thick, and covered it with the oil-cloth shade. In less than forty eight hours it began to ferment. I then placed on the manure a covering of rich loam six inches thick, in which I sowed my seeds. They sprang up readily, and grew as finely as if covered with glass. I planted cucumbers in small pieces of sod set in the bed, which grew rapidly, and were afterwards transplanted out, so that we had them much earlier than usual. When by such a simple contrivance as this, garden vegetables can be had from four to six weeks earlier than by planting in the open ground, it is worth a trial.

Raising Figs.

"A Boy Subscriber" in Crawford Co., Pa., writes to the *American Agriculturist*: "A neighbor of ours in eating some purchased figs three years since, saved and planted the seeds. They sprouted, and he presented me with one of the trees. It has grown well, but it has not borne any fruit. What shall I do to make it bear?"

Answer.—Your tree is scarcely old enough yet. You would not expect apples the third year from seeds. The fig, like the lemon, and orange tree,

is brought into bearing earlier by grafting or budding from another tree already yielding fruit. By obtaining from a nurseryman a single fig tree of an improved variety, you can easily multiply it by grafting upon seedlings, or by cuttings and layers. As the fig tree is not hardy, it should be bent over in Autumn, and covered with earth during the winter. It will then grow more thrifty, and be more likely to produce fruit.

Plant the Maple.

It is surprising that so little value is set upon the maple. For fire-wood it ranks high, and it is considered a good shade-tree; but it is not prized according to its merits. It possesses almost every conceivable quality of a good tree. It transplants easily, grows with rapidity, and thrives in almost any soil or situation. Its leaves push out quite early in the Spring; they are clean and bright during the Summer, making a very dense mass of foliage; and in Autumn their rainbow-tints are surpassingly beautiful. Some fastidious tree critics tell us that the outline of the body of the foliage is somewhat too regular and stiff; but if so, the many other excellences of the tree atone for this defect. We need not plant maples exclusively. The streets of a town should be set with a variety of trees. Some should be arched over with the graceful elm; others should have the ash, others the oak, the linden, the horse-chestnut; but not a few should be adorned with this standard tree. It would be an excellent arrangement to plant a long avenue with the different kinds of maple—the scarlet, the silver-leaved, the rock, and the black—interchangeably, and with frequent specimens of the white ash intermingled. The effect, all Summer long, would be varied and pleasant, and in the Fall, the scene would be as gay as fairy-land.

So much for beauty; now a word for use. On most farms, the maples were swept down at the original clearing of the land, as ruthlessly as the beech, elm and hickory—not so much for the fire-wood and lumber, as for the ashes and the land. The first settlers seem to have thought only of their present wants. Forests were an abomination, and down went sugar-maples and all; so that now, the land owners have to buy foreign sugar and molasses at double the prices the same amount of "sweetening" would have cost from the maple, if the original trees had been left standing.

Why would it not be a good investment to set apart two or three acres of land on every farm of considerable size, expressly for a sugar orchard? Set the trees about ten feet apart in rows ten feet asunder. This would give 435 trees to the acre, or about 1,300 to the three acres. When they have grown to a foot in diameter, they will each yield two pounds of sugar a season, making nearly half a ton to the acre. These trees will not materially injure the land for pasturage. A grove planted so compactly, would much facilitate the labor of gathering the sap. If such an orchard did not yield large returns of sugar to the planter himself, it would enhance the value of the land every year, and would be of great service to his children.

Of the usefulness of the maple as lumber, we need hardly speak. Every one knows what fine cabinet-work it makes, such as chairs, bedsteads, etc., and how valuable it is for fuel.

In addition to the native species of maple above mentioned, there are two or three foreign varieties worthy the attention of planters. One is the English maple (*Acer campestre*). South

of Albany, it is perfectly hardy. It reaches about thirty feet in height. Its leaves resemble those of the gooseberry. It makes a broad, spreading head. This was a favorite of the late Mr. Downing.

Another species is the Norway maple (*Acer platanoides*). It resembles the sugar maple, but has a more rugged and branching habit. Its leaves are larger and darker. It is hardy at the extreme north, and is worthy of the notice of all planters. Mr. Meehan, in his "Hand book," says: "It is quite a peculiar tree, combining the artistic appearance of some trees with the rusticity of others. There are many situations in a landscape where it would be singularly effective."

Another is the Ash-leaved maple (*A. Negundo*). This is often found indigenous in the Middle and Southern States. It is a fine tree, but not equal to those already mentioned. It very much resembles an ash.

NEW VARIEGATED-LEAVED TREE.—Foreign journals speak of a new variety of the maple, styled *Acer negundo variegata*, which has lately been introduced to the market. It is said to resemble the ash-leaved maple of our own plantations, except that the leaves are strikingly variegated. It is reported to be as hardy as any of the maples.

"That Wonderful Tree in Oregon."

[The following communication from P. Ritz, a subscriber in Oregon, is in response to inquiries made under the above heading in the *Agriculturist*, Vol. XVIII, page 305 (Oct. No.) Specimens of the bark, leaves, and seeds of the tree were forwarded; the latter are under trial for propagation. We shall be happy to record the success in this locality, of a tree of such promise.—Ed.]

To the Editor of the *American Agriculturist*.

In relation to that "Wonderful Tree in Oregon," you have been slightly misinformed. Instead of its being confined to one particular place, I have seen it in every county in Oregon, and in several places in Washington Territory. Within the last few days, I have seen trees of this species 50 feet high, and large enough to make nearly two cords of wood. It is a very pretty, close grained, yellow wood, and makes good furniture, or a good fire.

In regard to its general appearance you stated correctly, except that its leaves are not fragrant. You had doubtless confounded it with an evergreen, fragrant shrub, leaves and seed of which I also enclose with this.

We call the first mentioned tree the Laurel, and it is certainly the most beautiful ornamental tree I ever saw. Its bark is as smooth as polished mahogany, and of a pretty pale red color. It is an evergreen with thick, leathery leaves somewhat like the pear, has clusters of small white flowers in the Spring, that produce clusters of scarlet berries the size of a small cherry, which are rather pleasant to the taste, and may be eaten with impunity, as I have proved. They are quite palatable to the poor half-starved emigrant who can get nothing to eat but boiled wheat and smoked salmon. I have not noticed trees in bloom, or yielding fruit, under 10 to 12 years old.

Last season I received \$600 worth of shrubbery from New-York, and out of the whole lot there was nothing so pretty as this native tree.

The fragrant shrub alluded to, grows 6 to 9 feet in height, with thick, dark green leaves, so full of resin that they are quite sticky to the touch, and impart an agreeable odor to the hands, when rubbed with them.

Cranberry Culture.

There is a healthful agitation upon this topic all through the northern and eastern States. Fungus as he discusses his roast turkey and trimmings, in his magnificent dining room on Fifth Avenue, wonders at the small dish of cranberry sauce that modestly stands sentinel to his favorite bird. "Have diminutive side dishes come again into fashion, my dear? Haven't had sauce enough at any dinner this Winter."

"Cranberries, my dear, if you must know," responds Mrs. Fungus, "are six dollars a bushel, and not always to be had even at that. If we are able to have them every day, there are many respectable people who are not, and it becomes us to set them a good example in household economy."—"Go to grass with your economy, please, and enlarge the size of the sauce dishes."

Merryweather, the carpenter, has not seen the dish upon his table this season, and wonders if the turkeys ate up all the berries before they were sent to market. Jones, the farmer, raised a fine lot of them, but the price was so high, that he could not afford to keep even a peck for his family, and not a cranberry has gladdened his eyes since the Thanksgiving turkey sent up its incense upon his table.

"Cranberry sauce, wife! you might as well make a stew of gold dust, and have done with it."

An article coming so near to the almighty dollar as this, is well calculated to stir the blood of all Yankees, and for their benefit, we purpose to throw out a few hints appropriate to these cranberry fever times. This fever, however, is not of the *Multicaulis*, or *Dioscorea* type. There is no princely monopoly of the vines, and they are not advertised at twelve dollars the dozen, warranted to be of immaculate purity, and imperial excellence. It has a solid basis in innumerable swamps well stocked with myriad plants, which are to be had in any desirable quantity for a mere song.

VARIETIES OF THE CRANBERRY.—There are three distinct species of this fruit, the high bush cranberry (*Viburnum opulus*) which belongs to a different genus of plants, and is no cranberry at all. The (*Oxycoccus Palustris*) or European cranberry, and the *Oxycoccus Macrocarpus* or American cranberry. This last is native to our continent, and is the article usually found in our markets. Forty years ago it was comparatively little known in the market, and was rarely cultivated. The whole supply was drawn from the swamps, where the vines struggled in unaided rivalry, with bog hay, moss, and bushes. Some years they yielded abundantly, and the farmer generally sold them at about a dollar a bushel, which merely paid handsomely for picking. If there were years of scarcity, they were not much higher, for Fungus had not learned to prize them, and of course, felt no perplexity, whether the sauce dishes were large or small. They have had a healthy growth, and have fairly worked their way into popular favor, upon their own merits. Though not the greatest vegetable boon Providence has ever vouchsafed to mortals, they are very generally appreciated by all classes, by those of simple tastes, as well as by epicures.

In the process of cultivation it has been found that there are several varieties of our American species, and quite likely sub-varieties, the result of hybridization. This fruit is entered upon the lists for improvement by our zealous amateurs, and it is not improbable that in the next twenty years the varieties will be as numerous as those of the strawberry. All the varieties of the Amer-

ican species, are much superior to the European, both in size and quality. While that remains uncultivated, ours was introduced into England by Sir Joseph Banks, some thirty years ago, and has been received with favor.

THE SELECTION OF SOIL FOR A PLANTATION.—There is a difference of opinion among cultivators as to the best locality for this vine. Some affirm that it will flourish and bear abundantly upon upland, while others claim, and they are largely in the majority, that it can be grown to advantage only on wet land. It is certain that the native localities of the plant, are invariably either swamps, or wet places upon the sandy margin of ponds and lakes. It also has an affinity for salt, and is frequently found growing in wet meadows near the mouths of creeks, in places just reached by the highest tides. While the plant is abundantly distributed in these swamps, it is found to be most productive in those localities that remain flowed during the Winter and Spring. Here the vines are often loaded with fruit, while others in dryer spots are barren. The plant does not blossom until quite late, and those standing in the water, are delayed several days in their blossoming, until the critical frosts are over.

Cultivators have taken hints from these facts in the natural history of the plant, and have selected swamps that can be flowed at will for their plantations. More attention has been paid to this crop in Massachusetts, than elsewhere, and the favorite localities in that State are upon Cape Cod, where the cultivator can have swamp, muck, and sand in any desirable quantity.

PREPARATION OF THE GROUND.—Though the plant rejoices in abundant moisture, it is particularly important that stagnant water should be avoided. The scum and slimy moss generated in such places, injure the vines, and finally destroy them. It is usual in a thorough preparation of the soil, to give it surface drainage, and to remove all brush, stumps, and tussocks, and to cover it with three or four inches of sand. Though the plant will grow in muck very well, and sometimes bear fruit, the sand is said to pay abundantly by giving larger and more uniform crops. The spreading of sand or coarse gravel, adds largely to the expense, but is not an insuperable objection, where the material lies immediately upon the bank of the swamp. There are thousands of acres lying near the sea shore, that nature seems to have adapted to this crop. They only need capital judiciously expended, to fit them into cranberry yards. It is said to pay well to expend four and five hundred dollars an acre in preparing the soil. All manures are worthless to apply to this plant. It asks only muck, sand, and water, to give the most bountiful crops in perpetual succession.

To make the crop certain, it is necessary, especially in localities remote from the sea air, to have the means of flowing the plantation at will. Where a small stream runs through the swamp, this is easily managed by a dam and water gate. Near the sea, the early and late frosts are so much kept off by the marine breezes, that the flowing is less important.

SELECTION OF VINES.—There is a considerable difference in the varieties of this fruit. The Bell, the Bugle, and the Cherry cranberries are distinct sub-varieties, recognized among eastern cultivators. It is better to order plants from well cultivated yards, than to take them up from native localities. If you have confidence in the cultivator, you will need to give yourself no further trouble about plants. But if you choose the natives, it should be borne in mind that many of

them are barren, and the stoutest, largest plants have this distinction. It is well to mark the most productive vines while in bearing, in order to make a good selection. If you can not do this, take vines of medium thickness, or strength of stalk, and bushy leaves.

Deep and Shallow Holes for Trees.

Recently several influential writers have come out strongly in favor of digging the ground very little, or none at all, where trees are to be planted, and several examples are given to prove the correctness of the theory. They are partly right and partly wrong, and the danger is that those who are generally careless, slipshod planters, will take what is wrong, and keep on in their old ways. There are three important points to be kept in view in planting out trees of all kinds—especially fruit trees.

First. A portion of the roots should be so near the surface, and in so porous a soil, that they can enjoy air and the sun's warmth.

Second. Part of the roots must go deep enough to secure abundant moisture or sap at all times, particularly when the surface soil is temporarily parched by drouth.

Third. The sub-soil, so far down as the roots penetrate, should be of good character, that is, it should have been so exposed to the action of air as to destroy the soluble proto-salts of iron, magnesia, etc.; and also organic acids, otherwise these substances will be absorbed and act as poison.

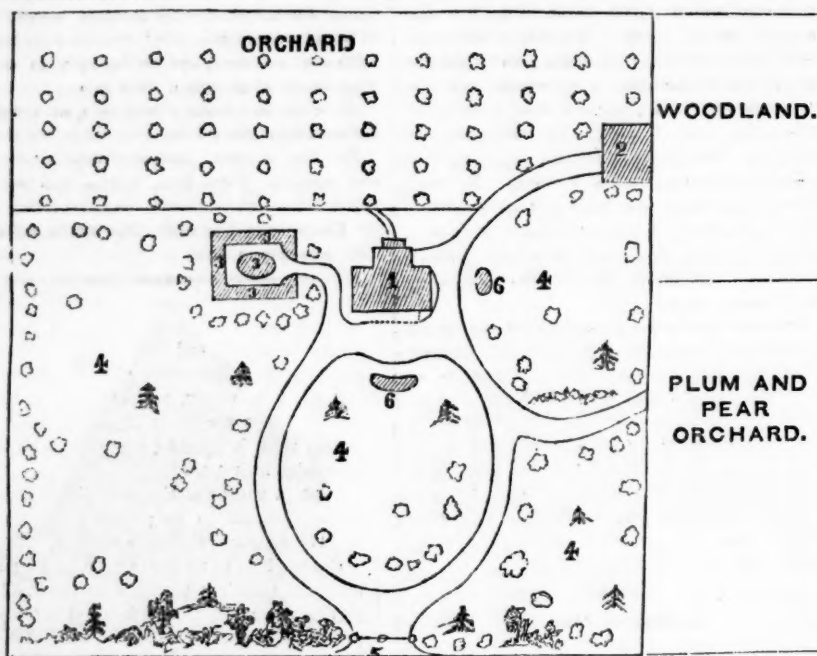
The most important part is to have the soil deeply drained, so that it shall not be saturated with water, which shuts out free circulation of air. If a soil be heavy, cold, and damp, and the tree planter will not take the trouble to change its character by deep draining, it will be better for the tree, to cut off its tap-roots, and set it directly upon the surface, covering its roots with a bank or bed of good surface soil taken from some adjacent or distant locality, as the case may be. This in effect secures drainage.

A better plan is to dig deep, wide holes, and fill them a little more than full with good surface soil, and provide for drainage down to the bottom of the holes thus made. Then plant the trees only to the depth they stood in the locality whence they were removed. By this plan, a light open soil is secured. A part of the roots will then spread out near the surface, and enjoy the direct influence of air, warmth, and even light to some degree. Another portion of the roots will extend down into the good soil prepared for them, and in the driest weather will there find abundant moisture to supply the large amount of sap evaporated from the leaves and appropriated by the fruit. A much larger feeding ground is thus provided, and the tree will flourish, and bear more abundant fruit.

AMERICAN PEARS ABROAD.—Among American pears, those which have proved to be really good in England, are the Tyson, Seckel, and Moya-mensing. There, as here, the Seckel is made "the standard of flavor."

The Latin word for man is *vir*. A little fellow, who, like too many others, was set to studying the Latin language before he could scarcely use his own, astonished his teacher by the following translation: "*Vir* is a man; *Gin* is a trap: therefore *virgin* signifies a man-trap."

"I presume you won't charge anything for just remembering me," said a one-legged sailor to a wooden-leg manufacturer.



PLAN OF GROUNDS AROUND A COUNTRY RESIDENCE.

EXPLANATIONS—1, House—2, Barn—3, 3, 3, Flower Garden—4, 4, 4, 4, Lawns—5, Entrance to the premises—6, 6, 6, Flower Plots or Beds.

One Plan for Laying out Country Grounds.

To the Editor of the American Agriculturist:

Can you help an old subscriber out of a bad scrape? I bought Downing's Landscape Gardening, to assist me in laying out my grounds; but the plans are too expensive, and my cranium is too thick to comprehend and carry them out. I like your plan in the October No., but I can not arrange my trees and walks and shrubbery to suit me. There is not a tasty front yard in this county, so far as I can learn. . . . I send herewith a rough sketch of my premises, their dimensions, etc., and wish you would draw out a plan to suit it. Yours, to command, as Mr. Bunker says,

N. E. BLODGETT.

To the above out-spoken letter of our friend (whose locality we do not recall), we answer, that while it is usually impossible to devote the required time needed to examine and respond to individual plans and specifications, we have in this case taken the notes forwarded, and worked out a plan, which may be suggestive both to Mr. B. and others. The explanatory notes above, furnish all needed information in regard to the design. The engraver has made the trees all alike; those in the lawns, 4, 4, 4, are intended for various deciduous and evergreen trees and shrubs. The entire front and sides might be lined with an Arbor Vitæ screen, if desired.

Hints on Starting Private and Commercial Nurseries.

In response to a great number of questions from various sources, (including half a dozen formal ones from S. A. Allison, Indiana County, Pa.,) we throw together here a few hints which will cover the ground embraced in all the queries we believe.

1. *Seeds and Sowing*.—Seeds of all tree fruits, including also nuts, acorns, locust, etc., should be gathered and placed in the ground, or put in boxes of earth as soon as ripe, that is, during Nature's planting season. Most of them may be made to grow after keeping months or even years, if not too thoroughly dried out, but they rarely vegetate so well. If not planted at once, they may

be put in boxes of moist but not wet soil, and be exposed to freezing during Winter, or not. If not put in earth, they should be kept in a cool place entirely away from fire heat or warmth, and not in a garret room heated by the sun's rays. As early as possible in Spring they should be put into a seed bed. Some plant them at once in drills or nursery rows, but it is better to prepare a good seed bed to start them in, and afterwards transplant to the nursery. For a seed bed choose a warm mellow soil, and prepare it by deep spading and working in a heavy coat of well-rotted manure. Pulverize the surface well, and rake off smoothly. Sow thickly, in drills eighteen inches apart, covering with nearly an inch of finely pulverized soil. Use seed freely. Better have a quantity of the weakest plants to throw away, or set elsewhere, than not have enough in the seed bed. All that is now necessary, is to keep the ground well hoed between the rows, and pull all weeds growing among the plants. If the seed did not come up well, disturb the earth as little as possible in the row, for the remainder may come up another season. Many of the seeds of stone-fruits frequently remain in the ground a year before sprouting.

2. *Transplanting to Nursery Rows*.—Peaches, and many of the plums, pears, and apples, if they make a good growth, will be ready to transplant the next Spring, while the more slow growing trees may very properly remain in the seed bed two years. As it takes from one to three, and sometimes four years, after setting in rows, for the trees to attain a good planting size, and as the ground can not be readily enriched while they are growing, it is important that the soil be heavily manured before putting the trees in nursery rows. The ground should also be deeply plowed and subsoiled, or spaded and trenched. Excepting for some evergreens which thrive in damp ground, the nursery soil should be naturally light and dry. Having prepared the ground as early as it can be worked in Spring, lay off straight rows three to three and a half feet apart, with a plow or spade, and set the young seedlings eight to twelve inches distant in the row, according to their prospective size. It is well to set them by a stretched line, so as to have the rows perfectly

straight. If the main or tap root is long, clip the lower end to induce side roots. Set them at the same depth as they stood in the seed bed.

3. *Budding or Grafting*.—Seeds of the apple, pear, peach, cherry, and plum, rarely produce good fruit; therefore some approved sorts are to be worked upon them by budding or grafting. As buds are set more expeditiously than grafts, and also into younger trees, budding is more frequently adopted. The operation was so fully described and illustrated in Vol. XVI, page 161, that we omit it here, merely remarking that it is done in June and July, upon stocks one third to one half an inch in diameter. Most trees will be of the right size the same Summer they are set in rows. We have seen the quick growing peach transplanted with a trowel when a few inches high, and budded the same Summer, making trees suitable for planting out in the Fall of the succeeding year. Usually, however, trees are budded the season they are set in rows after growing one or two years in the seed bed. Most trees need two years' growth from the bud to attain a selling size. The next season after budding, the tops of all trees in which the buds look fresh, should be cut off about two inches above the bud. Some cut these away in the Autumn after budding. Rub off any suckers which may start out, and tie the new shoot to the projecting stump, if it is not growing sufficiently upright. About mid-summer, cut away this stump, so that the late growth may heal the wound. The trees are now left to attain a planting out size. Remember to keep down all weeds and to have the ground well lightened with the plow or horse hoe. Some of the buds will fail to grow, and some trees will be too small, or of too weak a growth to be budded the first season. Attend to these the next year, and if any are still left, graft them the following Spring, after the manner described on page 82 of this volume (March No.) Some tree growers, and still more vegetable physiologists, maintain, and with a good degree of reason, that trees should be grown in their natural state until planted in the orchard, and then grafted in the branches. They contend that a wilding is more hardy, and has a better constitution than a grafted tree, and that as much of the native stock should be preserved as possible.

4. *Distance apart of Trees in Orchards*.—This will depend upon the kind, the size and age to be attained, and the manner of training. For the long-lived, large growing apple trees, 25 to 30 feet apart is a good distance. When land is valuable, and to be devoted chiefly to fruit, it is not a bad practice to set apple trees 15 feet apart, and cut out the alternate trees when they attain a large size. No tree should shade the soil for several feet around the base of another tree. Trees trained as dwarfs, or with low compact heads, may stand nearer than those trained higher with large spreading heads. Peach Trees which are short lived, and never grow to a large size, may be set 15 to 20 feet apart. The above italicized rule in regard to shading, should be kept in mind.

No fruit seeds can be depended upon to produce trees true to the parent stock. The pits of good peaches and cherries are more likely to produce good fruit, than those of poorer varieties, but no reliance can be placed upon this mode of propagation. Grafting and budding are so easily performed, that one or the other should always be resorted to.

To a squire who was boasting of his horse's speed, Sam Foote replied—"Pooh, my horse will stand 'faster' all day than yours can gallop!"

How to Raise Strawberries.

Our old subscribers need little instruction on this point, as our former volumes will testify; but our new friends will look to us for words of counsel. And as this present month of April is the best season of the year for planting strawberries, we give our counsel now.

Strawberries can be raised on almost any soil, and with almost any treatment, but there is a right way of growing them, and this we desire to point out.

As to soil, a warm, sandy loam is the best. If it is naturally deep and rich, it will need no spading and manuring, but such soils are rarely found. Every one must have noticed that strawberry beds on shallow soils often dry up before the crop is half grown. It is chiefly to obviate this, and to secure large handsome berries, that it is important to deepen the soil, thus furnishing room for the roots to ramble in search of food and drink in dry weather.

Having first laid off the plot of ground designed for planting, begin on one side, take off the top soil one spade deep, over a space four feet wide, and carry it in a wheelbarrow to the other side of the patch. Then give this uncovered space a good dressing of old manure, and spade it under, mixing it all thoroughly. Now uncover another breadth four feet wide, throwing the top soil of the same upon the bed already

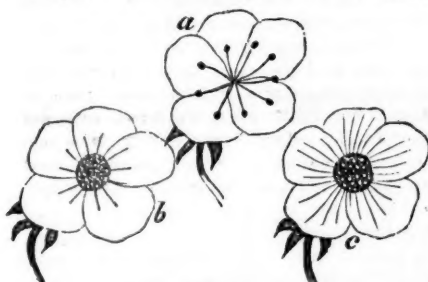


Fig. 1.

manured and spaded. Then dress the new bed with manure, and spade it in as before. Pursue this method until the whole plot is trenched and manured. The top soil taken off from the first bed will, of course, cover the last. Then, if convenient, spread a coating of ashes and black earth from the woods over the entire plot, and work it into the surface, and finally rake smooth.

This plot may now be set with vines either in rows or beds. If pistillate varieties are cultivated either in rows or beds, at least every fourth division should be planted with staminate, or perfect (hermaphrodite) plants, which are preferable, so fertilize the pistillates. The annexed illustrations will enable the inexperienced to determine



Fig. 2.

the sexual character of the strawberry blossom. *a*, fig. 1, shows a staminate or male plant. It has in the center only stamens, made up of thread-like fibers (filaments) each terminated by a little knob (anther) containing the yellow fertilizing dust (pollen)—*b* and *c*, fig. 1, represent pistillate or female plants. The central parts consist of small greenish protuberances, which are the embryo or undeveloped fruit, but contain no perfect stamens. The filaments are sometimes present as in *b*, but they bear no anthers, and hence

can not fertilize the pistils below them by a discharge of pollen. In fig. 2, a perfect or hermaphrodite flower is shown. It contains both the pistils and perfect stamens. *p* represents the pistils of a flower—*a*, *b*, a single stamen; *a* being the anther, and *b* the filament. The following are among the best strawberries now raised, according to our experience and observation: Wilson's Albany Seedling, perfect flower; Hooker's Seedling, perfect flower; Hovey's Seedling, pistillate; Longworth's Prolific, perfect; McAvoy's Superior, pistillate; Peabody's New Hautbois, pistillate; Early Scarlet, perfect.

There are two leading methods of managing the plants. One is that of clipping the runners continually, and so keeping them in hills or rows; the other, that of letting them cover the bed or plot at once, spading under the older plants every year, or breaking up the beds entirely and making new ones as fast as the old run out. The latter is probably the easiest method; the first produces the largest and best fruit. Lazy men and very busy men generally choose the latter—amateur growers adopt the former.

A Dish of Peas.

The pea is perhaps the most popular vegetable grown; it garnishes the table of Jew and Gentile all over the globe. Doubtless, it is not as nutritious as roast beef or baked beans, but it is very palatable and useful. The Doctors say that peas purify the blood; the good doctors like peas! As this vegetable is so easily and quickly grown, every owner of a garden should be ambitious to have an early and abundant supply. To bring out all their good qualities, they should be cooked properly. One garden author says, "they are often miss-boiled." Does he mean that young Bridget is allowed to cook them, instead of her mistress? They should be picked, shelled, cooked and eaten, all within four hours. To give them the last touch of perfection, some nice cooks throw in a sprig or two of mint, while boiling. But let us raise them, and afterwards attend to the cooking.

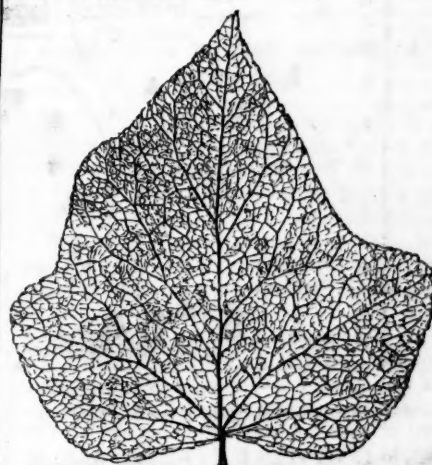
Culture.—For the earliest garden crop, choose a warm corner, under the lee of a high, tight fence, and with a light, dry soil, not over-rich. The ground should have been enriched the preceding year; if manured the same season, the crop will run to vines with little fruit. A light dressing of ashes may perhaps be allowed. Spade up the ground as soon as the frost has fairly left it, and level off with a coarse rake. Make drills about two inches deep and six inches apart. Sow the peas about an inch apart in the drills, and cover them with the back of the rake. Then leave a space four feet wide for a walk, and make another double row of drills in the same way. As soon as the peas are up, or before, they may be "bushed," the bushes being set between the narrow drills—one row of bushes answering for two drills. Of course, the size of the bushes will be regulated by the known size of the varieties of peas planted. Some persons prefer another mode of sustaining the vines, like this: Set firm stakes, four to six feet high, along the sides of the rows, about six feet apart. Fasten strong cotton twine from pole to pole, raising the first or adding a second line as the vines grow. Two lines will generally be enough for a row.

We need hardly add that the plants should be hoed as soon as they rise a few inches above ground, and this tillage should be continued for several weeks. To hasten the maturity of the first crop, nip off the ends of the vines, soon after the blossoms appear. This checks the growth into mere vines, and throws the strength of the

plants into the pods. One can gain several days in the growth of his early crop, by planting the drills east and west, and setting up boards a foot wide on the north side of each row.

As to the best kinds of peas for garden-culture, our own experience would class them about thus:

For the earliest: *Daniel O'Rourke*. For the next earliest; *Early Kent*, or *Prince Albert*. To follow these, we should at the same time plant the *Champion of England*. This last is one of the best peas now grown.



Inexpensive Household Ornaments....III.

SKELETON LEAVES.

If a leaf of a tree be examined particularly, there will be seen numerous small fibers or ribs, running in various directions through its substance, composing, usually, a fine network. These fibers are really little branches of the wood of the tree, spreading out and ramifying until the finer ones are too small to be seen without a microscope. The interstices between these veins are filled with a softer substance, cellular tissue, containing the coloring matter. The cellular tissue decays more readily than the woody fiber, and if properly managed can be removed, leaving a network more delicate and beautiful than the finest lace. Specimens of this work may often be found executed by insects, as, for instance, when the slug infests rose bushes; it eats the tender tissue only, the woody part being too hard for its teeth.

We recently received from Mr. J. Fogle, Muscogee Co., Ga., some very beautifully prepared leaves, one of which we have engraved, and present it with his description of the process, which may be new to many. Leaves of a rather firm texture are selected, as the apple, pear, camellia, ivy, bay, cape jessamine, etc. The best time for using is when they are just matured. Previous to this they are too tender and the fibers are broken; if too ripe, the cellular tissue becomes hardened, and is not easily removed.

Single leaves, or branches containing leaves and seed vessels, are steeped a few minutes in hot water, then placed carefully in cold rain water, and left undisturbed until sufficiently decayed. This will require from twelve days to three weeks or even more. The water need not be changed. When the leaf becomes soft and pulpy, take it out carefully, lay it on a plate containing just water enough to cover it, and pass a fine camel's hair brush gently over it to remove the pulp. If it does not all come off easily, return it to the water for a few days more, until all but the fibers can be brushed off. The skeletons are improved in appearance by bleaching, which may be done by mixing about a teaspoonful of Chloride of lime, to half a pint of

water, and letting them remain in it until white, which will require about an hour. Wash them with clean water, removing any particles of lime with a brush, and dry them between folds of blotting paper. They may be arranged in wreaths, bouquets, etc., and make a pretty mantel ornament. To preserve them uninjured from dust, etc., they may be kept covered with glass. The specimens sent to us are so beautiful, and the process of preparation so simple, that we advise others to join us in providing a supply of them for household ornaments.

An Excellent Book for Housekeepers and others.

We believe we are consulting the best interest of our readers by going out of our usual course, to specially recommend a particular book as worthy of being purchased and studied not only by housekeepers, but by all classes of readers, for the subjects discussed are of practical moment to all. We refer to Youman's "*Hand-Book of Household Science*." This is not a clap-trap book got up by a 'retired housekeeper' and filled with all sorts of recipes, good, bad, and indifferent, but a thorough, scientific, and practical work, discussing in a condensed but plain manner the various operations connected with every day in-door life. Not only are the practical details attended to, but the principles are explained upon which are founded the various operations of cooking, preserving meats and vegetables, cleansing, etc., etc. The laws of heat, for example, are taken up and illustrated, and then they are applied in detail to the preparation and use of fuel, proper construction and management of stoves, fire-places, chimneys, ventilators, the best kind of clothing, etc. After an interesting explanation of the nature and laws of light, we have their application to the lighting of dwellings, the combination of colors, preservation of the eyes, etc. But we can not go into details. The book contains 447 well filled pages, and embraces 813 sections or sub-divisions upon separate topics, each of which is referred to in an index. The Author, Prof. Youmans, who is one of the most interesting, and instructive lecturers we have ever listened to, has devoted much time and great labor to the preparation of this book, and he has admirably succeeded in filling it with just such information as we would gladly introduce into our columns set apart for In-Door work, but which our limited space and want of time prevent our doing fully.

We would like to see the occupants of the household not the mere drudges they too often are. By this we do not mean that we desire to see them less actively employed, but we would have their minds occupied and interested in the labors of their hands. Every kitchen process, even to using soap or hot water for cleansing, is strictly a chemical operation, and is founded upon chemical laws, and we hold that the understanding of these laws would not only render all these labors more interesting and less a drudgery, but would also tend directly to their better performance. Cooking food, mixing bread, coloring, etc., are just as much chemical operations, as the preparation and compounding of medicines; the best housekeeper is she who best understands the whys and wherefores, as well as the how.

This *Hand-Book of Household Science* may well be kept as a reference book, but it should also be studied through. It can not be merely read through in a day, or week, or month. Those who are little acquainted with science, may at first open it at random, and read any section by

itself, or select any topic from the table of contents, and read about that, and then another, and so on, until they become interested, but we would advise every one while reading on different topics, to also begin and study the whole through, slowly, carefully, and even painfully, if the principles of chemistry and philosophy be not previously familiar. When the topics here treated, are discussed by the family at the fireside, and at the table, useless gossip will be displaced, and the younger members of the family will grow up more intelligent, and better reasoners and thinkers, and enjoy life more, both physically and mentally.

Though the work is written in the Author's plain, popular style, we can not recommend it as easy reading. Some hard words are necessary, though they are explained in the first chapters.

We have spoken thus strongly of this book, not from any personal interest in the author or the publishers, but because it is the best book of the kind, and such a one as we would like to have all our readers, and indeed every family in the land, own, read, study, and understand. We shall take special pains to procure a supply of copies, and keep them to furnish to such of our readers as can not procure them more conveniently of booksellers near at hand. The retail price of the book is \$1.25, at which price we can send it post-paid by mail. If several persons wish to send together and have them come by express, the cost of the postage (25 cents each) will be deducted from the price. To any book-seller who will aid in the distribution, we will furnish them by the dozen (for cash) at the usual trade price.* We wish it distinctly understood that this departure from our usual custom, in thus recommending a particular book, and offering to aid in its circulation, is an exceptional case, not undertaken for pecuniary considerations, but because this work so nearly supplies a kind of information which we would desire to communicate wholly through our own columns, but which we can not hope to do fully in half a dozen volumes.

* To any person sending us a club of ten subscribers at 50 cents each the present Spring, we will send a post-paid copy of the *Hand-Book of Household Science* as a premium.

Freezing Cockroaches a sure Remedy.

To the Editor of the American Agriculturist:

I noticed in the March No. of your paper an article on "Freezing out Cockroaches." Our whale ships, particularly those that have cruised for three or four years off the coast of Peru, or in other warm climates, when they return to this port, literally swarm with cockroaches. If, however, they remain at home during the Winter, not one live roach can be found in the Spring, notwithstanding there may have been millions on board when the ships arrived. If, by chance, any house in this vicinity becomes infested with these nuisances, so well do our housekeepers understand the efficacy of the freezing process, that they are seldom troubled with them after having a few days of freezing weather. All that is necessary to be done, is to let the fires go out, open the windows, the inner doors, especially those of the closets and lockers, and allow the cold air to have free circulation through the house for a few days. This process is certain, provided the temperature of the air is somewhat below the freezing point. If down to zero or below, so much the better. It is, perhaps, needless to say that the family occupying the house, will find it advisable to leave during the time this process of extermination is going on.

New-Bedford, Mass.

AN OLD WHALER.

Hints on Cooking, etc.

[COPYRIGHT.]

[We take by permission another lot of twelve valuable recipes, from the copy-right work of Mr. Crozier, of Trenton, N. J., who was formerly largely engaged in the baking business, preparing extracts, etc. We have the testimony of several housekeepers to the value of the recipes published in our last.—Ed.]

SPONGE CAKE.—To 11 eggs, slightly beaten, add $1\frac{1}{2}$ pounds of fine sugar, and beat up until very light, with a wire beater, then flavor with extract of Lemon, and add about $\frac{1}{2}$ a teaspoonful of saleratus dissolved in as little water as possible; mix this through, and add $1\frac{1}{2}$ pounds of sifted flour; work this in gently, until smooth, with the beater. Put the batter in small, greased tins, with a spoon, and bake as soon as possible in an oven or stove, hot enough for bread. If made in one or two cakes, the oven must not be so hot, and the saleratus and water left out.

ALMOND SPONGE.—With a wire beater, beat up until very light and stiff, 1 pound of fine sugar and 12 eggs; flavor with extract of Almond; mix this in well, and add 1 pound sifted flour; mix in lightly, but don't beat the paste. Pour it all in a greased and papered pan, and bake immediately in a moderately hot oven. This will make a 3 lb. cake. The pan should not be more than half filled with the batter. It can be baked in smaller cakes if desired.

FRUIT CAKE.—Mix together, and beat until light, 1 pound of sugar and 1 pound of butter; then add (few at a time,) 8 eggs, and beat up light; flavor with extract of Clove, (a little extract of Nutmeg will improve it,) then $1\frac{1}{2}$ pounds of flour, mix it in partly, and add 1 pound of currants, 1 pound of raisins, $\frac{1}{2}$ pound of citron, and mix it all well through. More fruit can be added, if preferred. Bake in a moderately heated oven.

VANILLA DROPS.—Mix together $\frac{1}{2}$ of a pound of sugar and $\frac{1}{2}$ of a pound of butter, add 1 egg; mix, and flavor with extract of Vanilla; then add $\frac{1}{2}$ of a pound of flour; work in until smooth, and drop in small lumps with a spoon, far enough apart to spread on greased pans. Bake in a moderately hot oven.

WAFERS.—Mix well together $\frac{1}{2}$ a pound of sugar and $\frac{1}{2}$ a pound of butter, add 2 eggs; mix and flavor with extracts of Rose and Nutmeg; then add $\frac{1}{2}$ a pound of flour, and mix it well through. This paste can be dropped on greased pans with a spoon, far enough apart to spread. Bake in a moderate heat.

POUND CAKE.—Beat up together until very light, 1 pound of sugar, and 1 pound of butter, add 10 eggs, (8 eggs will do,) few at a time, and beat up light each time, flavor with extracts of Rose and Nutmeg; mix in these, and add 1 pound of flour, mix it in until smooth. Put in a greased and papered tin, and bake in a moderate heat. A hot oven or stove is required, if baked in small tins.

WASHINGTON CAKE.—Mix together until light 1 pound of sugar and $\frac{1}{2}$ of a pound of butter; add 8 eggs, few at a time, and mix; flavor with extract of Pimento, (extract of Nutmeg may be used if desired;) mix in 1 gill of milk, and add $1\frac{1}{2}$ pounds of flour; partially mix, and add $\frac{1}{2}$ a pound of currants, $\frac{1}{2}$ a pound of raisins, and $\frac{1}{2}$ of a pound of citron; mix all well through. Put in a greased and papered pan, or two pans can be used. Bake in a moderately hot oven or stove.

JELLY CAKE.—Mix 1 pound of sugar and 1 lb. of butter until light, add 8 eggs gradually, and mix; flavor with extract of Orange, then add 14 ounces of flour, and mix well through; then spread the dough out in thin round sheets on white

paper, about a large tablespoonful in each. Lay the papers on pans, and bake in a quick heat. Do not bake them too much. When cold, take them off the paper, and put them in piles of two or three thick, with any kind of jelly or jam between each layer; trim off the edges all around, and sift sugar over them, or they can be iced and ornamented.

ORANGE CAKE.—Mix well together 1 pound of sugar and $\frac{1}{2}$ of a pound of butter; when light, add 8 eggs; mix well, and flavor with extract of Orange, then add $\frac{1}{2}$ of a pound of sifted flour, and mix until the dough becomes smooth. Put it in one or more greased pans, and bake.

HONEY CAKE.—Mix together 7 ounces of sugar and 8 ounces of butter, add 4 eggs; mix, and add $\frac{1}{2}$ a pint of strained honey; dissolve $\frac{1}{2}$ of an ounce of saleratus in $\frac{1}{2}$ a pint of water or milk, and put to it; then flavor with extract of Cinnamon. Mix well through, and add sufficient flour to make it stiff enough to roll out and cut in cakes. Put them on greased pans, close together, and bake in a hot oven or stove. By using less flour, so that it will be more of a batter, it can be baked in larger cakes, in square tins. In this case the oven must not be quite so hot.

DROP CAKE.—Mix $\frac{1}{2}$ a pound of sugar and $\frac{1}{2}$ a pound of butter; beat up light; add 4 eggs; when well beaten, flavor with extract of Nutmeg, then add $\frac{1}{2}$ of a pint of milk or water, in which is dissolved $\frac{1}{2}$ of an ounce of saleratus, then add 14 ounces of flour. Work this in smooth, and drop the dough on the greased pans with a spoon, in lumps a little distance apart, and bake in a heat hot enough for bread.

FANCY CAKE.—Mix 1 pound of sugar and $\frac{1}{2}$ of a pound of butter until light; add 8 eggs, (half at a time,) and beat well, then flavor with extract of Nutmeg or Lemon, then add 1 pint of milk or water, in which is dissolved $\frac{1}{2}$ an ounce of saleratus, then add $1\frac{1}{2}$ pounds of flour. Work it in until the batter becomes smooth; put it in small greased tins, and bake in same heat as for drop cake. If either of these receipts are made in larger cakes, the oven must not be so hot.

CONVENIENT AND ECONOMICAL METHOD OF PREPARING PUMPKIN AND SQUASH PIE.

An extensive Baker, in good repute for his excellent pies, contributes to the *American Agriculturist* the following mode which he practices, and which is both convenient and economical: Cut each pumpkin or squash across into halves, and with an iron spoon scrape out the seed and the soft stringy pulp. Then set them, open side up, into a moderately heated oven. The juice, which is the richest portion, will collect on the inside, and when the whole is sufficiently soft, pour out the juice, and scrape out all the "meat," leaving only the rind or outer hard shell. This mass, mixed with the juice, and then the whole stirred up with milk, sugar, and spices, is ready to be poured upon the crust. By this method the labor of paring is saved; none of the pumpkin is wasted with the skins, or in boiling water; and the material is richer than when boiled in the ordinary way.

THE BEST COUGH REMEDY.—For allaying cough and loosening the throat when stopped with phlegm, we have found nothing equal to the following: mix and shake well together equal parts of paregoric, castor oil, and syrup of ipecac. From one half to a full teaspoonful of this given to a child, one, two, or three times, as may be necessary, has never failed of giving relief in our own experience. If required more than once, give it at intervals of two or three hours. An overdose produces a little nausea, but no injurious effect. The mixture may be prepared and kept in a vial ready for use.—*Ed. Amer. Agriculturist.*

PAPER IN SPITTOONS.—A GOOD HINT.—A subscriber to the *Agriculturist* gives the following useful suggestion: Housekeepers know the difficulty of removing clots of phlegm. This may be remedied by cutting a circular piece of paper, and laying it in the bottom of the spittoon whenever it is cleaned out. Any old paper will do, though sized brown or white paper is better, because less likely to tear than common newspaper. Old letters answer well.

The Editor with his Young Readers.

ABOUT DIOGENES.

One of the boys writes to the editor that he reads all that is said by "Diogenes redivivus," and learns a good many things from him, but he wants to know more about that old man with the lantern, for, he lives in a new country, away west of the Mississippi, and they have no books in his neighborhood in which he can find anything about Diogenes. His mother thinks that "redivivus" means 'come to life again' but is not certain. Your mother is right. The old farmer who writes the lantern chapters, chooses to call himself old Diogenes returned to life. Diogenes was born in Pontus, (in Asia Minor,) 413 years before Christ, or 2,273 years ago, and lived to be 90 years old. He was a Cynic Philosopher, that is, one of a class who prided themselves in their contempt of riches, amusements, and even of the common luxuries and comforts of life. They dressed very plainly and lived scantily. They were disposed to scorn the rest of mankind, and indulged in finding fault with the failings of other people. Altogether, the cynics were not a pleasant class of men, yet they doubtless did much good by their fault-finding, and Diogenes, who was one of the most noted of the cynics, uttered very many smart sayings. He was accustomed to sit by the way side under the shade of a tub, and criticize the conduct of all who passed near him. At one time he went searching through the streets at mid-day with a lighted lantern, and when questioned as to what he meant, he said, he was "trying to find an honest man," one whom he could not find fault with. Our Diogenes, you know, is searching with his lantern to find a really good farmer, one whose mode of farming he would not find fault with. He makes some pretty severe criticisms, but we let him keep on, hoping that his lantern will throw some light on bad farming practices, and that his criticisms will lead many to see the causes of their failures in cultivation. . . . One or two things more about old Diogenes. Alexander the Great paid him a visit one day as he sat by his tub, and tried to tempt him away from his severe mode of living, by offering him great riches, or anything else he desired; but the only answer received, was the request that Alexander would "stand from betwixt him and the sun"—as much as to say, you keep your riches, and don't deprive me of the benefit of the sun's warmth and light. . . . At another time the philosopher Plato, had been teaching his scholars that man was but an animal—"a biped without feathers." Diogenes took a rooster and plucked off all the feathers, and then threw him into the midst of the scholars, saying "that is one of Plato's men." By such significant acts and sayings he inculcated a great many truths in a striking manner.

ANSWERS TO PROBLEMS.

No. 9. What four U. S. coins just make 51 cents. Answer.—Two twenty five cent pieces, and two half-cent pieces. Correct replies from Edward Mason Jr., Elroy M. Avery, Frank Fancher, T. R. Smith, Edward F. Mansfield, James M. Bradley. Some answered one 25 cent piece, two 12 $\frac{1}{2}$ cent pieces, and one 1 cent. Not correct, because the 12 $\frac{1}{2}$ cent piece is a Spanish, and not a United States coin, and never should be. We are glad to find that the 6 $\frac{1}{2}$ cent and 12 $\frac{1}{2}$ cent pieces, which are so inconvenient in making change, but so convenient for small

shaving, are nearly driven out of circulation. They now pass for 5 and 10 cents in this city. Spanish "quarters" pass for only 20 cents.

No. 8. Economical Fencing (from page 89)

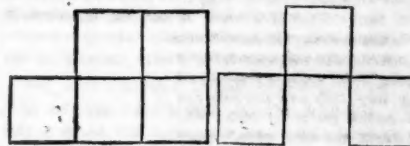


Fig. 1.

Fig. 2.

The puzzle was, to take away 3 of the fences from fig. 1, and leave only three perfectly fenced fields with no surplus fence. Fig. 2, shows how it is done. You can perform this best by cutting 15 sticks and laying them down on the table as shown in fig. 1, and then ask your playmate to take up only three sticks, and yet leave three fields only. We have received correct drawings like fig. 2, from Edward Mason Jr., John H. Treadwell, Elroy M. Avery, Edward P. Michals, Edward F. Mansfield. (The Edwards are in the majority in this list.)

NEW PROBLEMS.

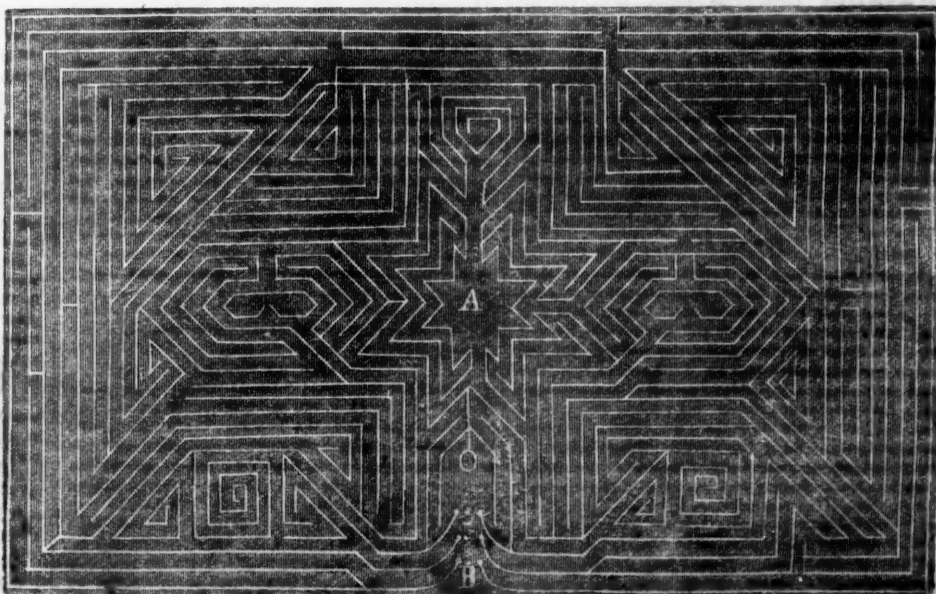


No. 10. Illustrated rebus by Aunt Sue, contains a pleasing feature, which you will be sure to like when you see it.

No. 11. The star puzzle will require some ingenuity, if you are not acquainted with it. It was contributed by I. W. Capwell, Iowa. In the figure, you see ten corners, where the lines meet, or cross each other. Take nine kernels of corn, or buttons, or bits of paper; lay one of these on a corner as at a, then take it up, and jump it over b, the next corner on a line with it, and leave it at c. Take another kernel, lay it on another vacant corner, jump it over one corner and leave it, as before. Keep on in this way, jumping every time from a vacant corner over to another, until the nine kernels are placed. If not worked right, there will be no vacant corner to jump from, before all



the kernels are laid down. Try to discover the rule for performing it.—A second puzzle with the same figure will be to jump off the corns. Beginning at one point, jump one kernel over another, and take off the one jumped over, and so keep on until you have only one kernel left. You will be bothered to get them all off without having some one left where the last one can not be jumped over it.



No. 12. LABYRINTH.—By Aunt Sue. To pass from B to A without crossing a line.

water, and letting them remain in it until white, which will require about an hour. Wash them with clean water, removing any particles of lime with a brush, and dry them between folds of blotting paper. They may be arranged in wreaths, bouquets, etc., and make a pretty mantel ornament. To preserve them uninjured from dust, etc., they may be kept covered with glass. The specimens sent to us are so beautiful, and the process of preparation so simple, that we advise others to join us in providing a supply of them for household ornaments.

An Excellent Book for Housekeepers and others.

We believe we are consulting the best interest of our readers by going out of our usual course, to specially recommend a particular book as worthy of being purchased and studied not only by housekeepers, but by all classes of readers, for the subjects discussed are of practical moment to all. We refer to Youman's "*Hand-Book of Household Science*." This is not a clap-trap book got up by a 'retired housekeeper' and filled with all sorts of recipes, good, bad, and indifferent, but a thorough, scientific, and practical work, discussing in a condensed but plain manner the various operations connected with every day in-door life. Not only are the practical details attended to, but the principles are explained upon which are founded the various operations of cooking, preserving meats and vegetables, cleansing, etc., etc. The laws of heat, for example, are taken up and illustrated, and then they are applied in detail to the preparation and use of fuel, proper construction and management of stoves, fireplaces, chimneys, ventilators, the best kind of clothing, etc. After an interesting explanation of the nature and laws of light, we have their application to the lighting of dwellings, the combination of colors, preservation of the eyes, etc. But we can not go into details. The book contains 447 well filled pages, and embraces 813 sections or sub-divisions upon separate topics, each of which is referred to in an index. The Author, Prof. Youmans, who is one of the most interesting, and instructive lecturers we have ever listened to, has devoted much time and great labor to the preparation of this book, and he has admirably succeeded in filling it with just such information as we would gladly introduce into our columns set apart for In-Door work, but which our limited space and want of time prevent our doing fully.

We would like to see the occupants of the household not the mere drudges they too often are. By this we do not mean that we desire to see them less actively employed, but we would have their minds occupied and interested in the labors of their hands. Every kitchen process, even to using soap or hot water for cleansing, is strictly a chemical operation, and is founded upon chemical laws, and we hold that the understanding of these laws would not only render all these labors more interesting and less a drudgery, but would also tend directly to their better performance. Cooking food, mixing bread, coloring, etc., are just as much chemical operations, as the preparation and compounding of medicines; the best housekeeper is she who best understands the whys and wherefores, as well as the how.

This *Hand-Book of Household Science* may well be kept as a reference book, but it should also be studied through. It can not be merely read through in a day, or week, or month. Those who are little acquainted with science, may at first open it at random, and read any section by

itself, or select any topic from the table of contents, and read about that, and then another, and so on, until they become interested, but we would advise every one while reading on different topics, to also begin and study the whole through, slowly, carefully, and even painfully, if the principles of chemistry and philosophy be not previously familiar. When the topics here treated, are discussed by the family at the fireside, and at the table, useless gossip will be displaced, and the younger members of the family will grow up more intelligent, and better reasoners and thinkers, and enjoy life more, both physically and mentally.

Though the work is written in the Author's plain, popular style, we can not recommend it as easy reading. Some hard words are necessary, though they are explained in the first chapters.

We have spoken thus strongly of this book, not from any personal interest in the author or the publishers, but because it is the best book of the kind, and such a one as we would like to have all our readers, and indeed every family in the land, own, read, study, and understand. We shall take special pains to procure a supply of copies, and keep them to furnish to such of our readers as can not procure them more conveniently of booksellers near at hand. The retail price of the book is \$1.25, at which price we can send it post-paid by mail. If several persons wish to send together and have them come by express, the cost of the postage (25 cents each) will be deducted from the price. To any book-seller who will aid in the distribution, we will furnish them by the dozen (for cash) at the usual trade price.* We wish it distinctly understood that this departure from our usual custom, in thus recommending a particular book, and offering to aid in its circulation, is an exceptional case, not undertaken for pecuniary considerations, but because this work so nearly supplies a kind of information which we would desire to communicate wholly through our own columns, but which we can not hope to do fully in half a dozen volumes.

*To any person sending us a club of ten subscribers at 50 cents each the present Spring, we will send a post-paid copy of the *Hand-Book of Household Science* as a premium.

Freezing Cockroaches a sure Remedy.

To the Editor of the American Agriculturist:

I noticed in the March No. of your paper an article on "Freezing out Cockroaches." Our whale ships, particularly those that have cruised for three or four years off the coast of Peru, or in other warm climates, when they return to this port, literally swarm with cockroaches. If, however, they remain at home during the Winter, not one live roach can be found in the Spring, notwithstanding there may have been millions on board when the ships arrived. If, by chance, any house in this vicinity becomes infested with these nuisances, so well do our housekeepers understand the efficacy of the freezing process, that they are seldom troubled with them after having a few days of freezing weather. All that is necessary to be done, is to let the fires go out, open the windows, the inner doors, especially those of the closets and lockers, and allow the cold air to have free circulation through the house for a few days. This process is certain, provided the temperature of the air is somewhat below the freezing point. If down to zero or below, so much the better. It is, perhaps, needless to say that the family occupying the house, will find it advisable to leave during the time this process of extermination is going on.

New-Bedford, Mass.

AN OLD WHALER.

Hints on Cooking, etc.

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[We take by permission another lot of twelve valuable recipes, from the copy-right work of Mr. Crozier, of Trenton, N. J., who was formerly largely engaged in the baking business, preparing extracts, etc. We have the testimony of several housekeepers to the value of the recipes published in our last.—Ed.]

SPONGE CAKE.—To 11 eggs, slightly beaten, add $1\frac{1}{2}$ pounds of fine sugar, and beat up until very light, with a wire beater, then flavor with extract of Lemon, and add about $\frac{1}{2}$ a teaspoonful of saleratus dissolved in as little water as possible; mix this through, and add $1\frac{1}{2}$ pounds of sifted flour; work this in gently, until smooth, with the beater. Put the batter in small, greased tins, with a spoon, and bake as soon as possible in an oven or stove, hot enough for bread. If made in one or two cakes, the oven must not be so hot, and the saleratus and water left out.

ALMOND SPONGE.—With a wire beater, beat up until very light and stiff, 1 pound of fine sugar and 12 eggs; flavor with extract of Almond; mix this in well, and add 1 pound sifted flour; mix in lightly, but don't beat the paste. Pour it all in a greased and papered pan, and bake immediately in a moderately hot oven. This will make a 3 lb. cake. The pan should not be more than half filled with the batter. It can be baked in smaller cakes if desired.

FRUIT CAKE.—Mix together, and beat until light, 1 pound of sugar and 1 pound of butter; then add (few at a time,) 8 eggs, and beat up light; flavor with extract of Clove, (a little extract of Nutmeg will improve it,) then $1\frac{1}{2}$ pounds of flour, mix it in partly, and add 1 pound of currants, 1 pound of raisins, $\frac{1}{2}$ pound of citron, and mix it all well through. More fruit can be added, if preferred. Bake in a moderately heated oven.

VANILLA DROPS.—Mix together $\frac{1}{2}$ of a pound of sugar and $\frac{1}{2}$ of a pound of butter, add 1 egg; mix, and flavor with extract of Vanilla; then add $\frac{1}{2}$ of a pound of flour; work in until smooth, and drop in small lumps with a spoon, far enough apart to spread on greased pans. Bake in a moderately hot oven.

WAFERS.—Mix well together $\frac{1}{2}$ a pound of sugar and $\frac{1}{2}$ a pound of butter, add 2 eggs; mix and flavor with extracts of Rose and Nutmeg; then add $\frac{1}{2}$ a pound of flour, and mix it well through. This paste can be dropped on greased pans with a spoon, far enough apart to spread. Bake in a moderate heat.

POUND CAKE.—Beat up together until very light, 1 pound of sugar, and 1 pound of butter, add 10 eggs, (8 eggs will do,) few at a time, and beat up light each time, flavor with extracts of Rose and Nutmeg; mix in these, and add 1 pound of flour, mix it in until smooth. Put in a greased and papered tin, and bake in a moderate heat. A hot oven or stove is required, if baked in small tins.

WASHINGTON CAKE.—Mix together until light 1 pound of sugar and $\frac{1}{2}$ of a pound of butter; add 8 eggs, few at a time, and mix; flavor with extract of Pimento, (extract of Nutmeg may be used if desired;) mix in 1 gill of milk, and add $1\frac{1}{2}$ pounds of flour; partially mix, and add $\frac{1}{2}$ a pound of currants, $\frac{1}{2}$ a pound of raisins, and $\frac{1}{2}$ of a pound of citron; mix all well through. Put in a greased and papered pan, or two pans can be used. Bake in a moderately hot oven or stove.

JELLY CAKE.—Mix 1 pound of sugar and 1 lb. of butter until light, add 8 eggs gradually, and mix; flavor with extract of Orange, then add 14 ounces of flour, and mix well through; then spread the dough out in thin round sheets on white

paper, about a large tablespoonful in each. Lay the papers on pans, and bake in a quick heat. Do not bake them too much. When cold, take them off the paper, and put them in piles of two or three thick, with any kind of jelly or jam between each layer; trim off the edges all around, and sift sugar over them, or they can be iced and ornamented.

ORANGE CAKE.—Mix well together 1 pound of sugar and $\frac{1}{2}$ of a pound of butter; when light, add 8 eggs; mix well, and flavor with extract of Orange, then add $\frac{1}{2}$ of a pound of sifted flour, and mix until the dough becomes smooth. Put it in one or more greased pans, and bake.

HONEY CAKE.—Mix together 7 ounces of sugar and 8 ounces of butter, add 4 eggs; mix, and add $\frac{1}{2}$ a pint of strained honey; dissolve $\frac{1}{2}$ of an ounce of saleratus in $\frac{1}{2}$ a pint of water or milk, and put to it; then flavor with extract of Cinnamon. Mix well through, and add sufficient flour to make it stiff enough to roll out and cut in cakes. Put them on greased pans, close together, and bake in a hot oven or stove. By using less flour, so that it will be more of a batter, it can be baked in larger cakes, in square tins. In this case the oven must not be quite so hot.

DROP CAKE.—Mix $\frac{1}{2}$ a pound of sugar and $\frac{1}{2}$ a pound of butter; beat up light; add 4 eggs; when well beaten, flavor with extract of Nutmeg, then add $\frac{1}{2}$ of a pint of milk or water, in which is dissolved $\frac{1}{2}$ of an ounce of saleratus, then add 14 ounces of flour. Work this in smooth, and drop the dough on the greased pans with a spoon, in lumps a little distance apart, and bake in a heat hot enough for bread.

FANCY CAKE.—Mix 1 pound of sugar and $\frac{1}{2}$ of a pound of butter until light; add 8 eggs, (half at a time,) and beat well, then flavor with extract of Nutmeg or Lemon, then add 1 pint of milk or water, in which is dissolved $\frac{1}{2}$ an ounce of saleratus, then add 1 $\frac{1}{2}$ pounds of flour. Work it in until the batter becomes smooth; put it in small greased tins, and bake in same heat as for drop cake. If either of these receipts are made in larger cakes, the oven must not be so hot.

CONVENIENT AND ECONOMICAL METHOD OF PREPARING PUMPKIN AND SQUASH PIE.

An extensive Baker, in good repute for his excellent pies, contributes to the *American Agriculturist* the following mode which he practices, and which is both convenient and economical: Cut each pumpkin or squash across into halves, and with an iron spoon scrape out the seed and the soft stringy pulp. Then set them, open side up, into a moderately heated oven. The juice, which is the richest portion, will collect on the inside, and when the whole is sufficiently soft, pour out the juice, and scrape out all the "meat," leaving only the rind or outer hard shell. This mass, mixed with the juice, and then the whole stirred up with milk, sugar, and spices, is ready to be poured upon the crust. By this method the labor of paring is saved; none of the pumpkin is wasted with the skins, or in boiling water; and the material is richer than when boiled in the ordinary way.

THE BEST COUGH REMEDY.—For allaying cough and loosening the throat when stopped with phlegm, we have found nothing equal to the following: mix and shake well together equal parts of paregoric, castor oil, and syrup of ipecac. From one half to a full teaspoonful of this given to a child, one, two, or three times, as may be necessary, has never failed of giving relief in our own experience. If required more than once, give it at intervals of two or three hours. An overdose produces a little nausea, but no injurious effect. The mixture may be prepared and kept in a vial ready for use.—*Ed. Amer. Agriculturist.*

PAPER IN SPITTOONS—A GOOD HINT.—A subscriber to the *Agriculturist* gives the following useful suggestion: Housekeepers know the difficulty of removing clots of phlegm. This may be remedied by cutting a circular piece of paper, and laying it in the bottom of the spittoon whenever it is cleaned out. Any old paper will do, though sized brown or white paper is better, because less likely to tear than common newspaper. Old letters answer well.

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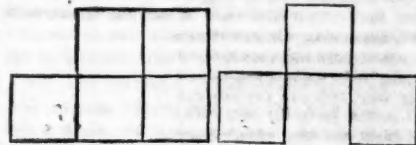


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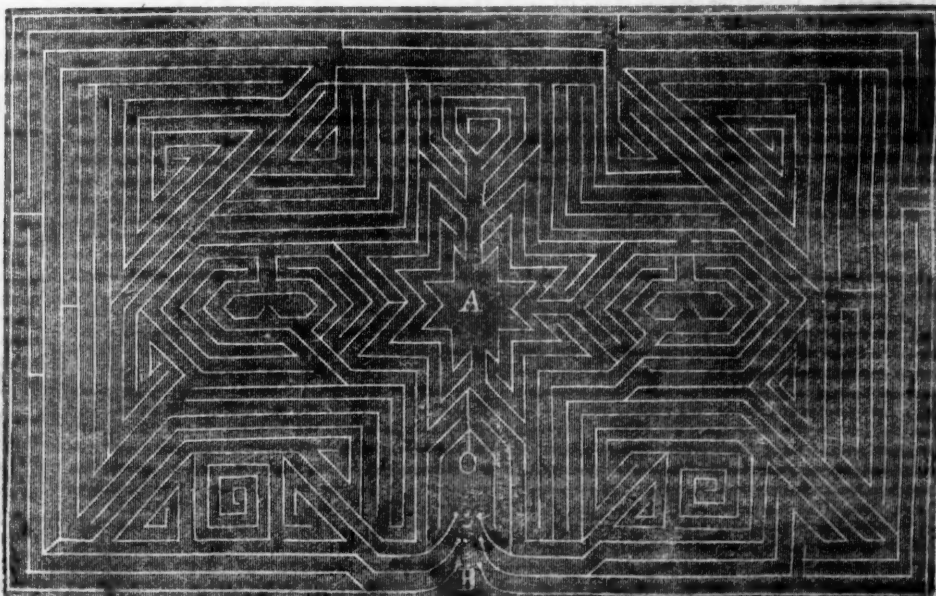


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No. 12. LABYRINTH.—By Aunt Sue. To pass from B to A without crossing a line.

THE FROG'S MUSIC LESSON.

Though we are writing for April, it is early in March, just now, and the frogs are with us already, singing their Spring notes. The old saying is, that Spring does not come in earnest until the frogs have been frozen in twice, and come out the third time. If the poor fellows don't get frozen in more than twice yet, our fruit trees will rejoice, or we shall, for we are very much afraid the fruit buds now swelling will be nipped yet by Sir Jack Frost, in one of his later visits. They can not hide away like the frogs in deep water, out of reach of pinching Jack. A few days since, we commissioned one of our artists to make for the *Agriculturist* boys and girls, an original sketch of the Frogs in Spring. (We have often told you that frogs and toads are our favorites, not so much for their good looks, or good music, as for their good deeds in catching noxious insects in the garden). Well, you see what a picture the artist has brought out. Rather comical, but quite expressive. We suspect he has been in consultation with that friend to whom we surrendered the editor's chair for an hour, last Summer. Do you remember that funny dream he had, of all the birds and frogs and insects in concert? Perhaps the artist has himself been attending such a concert, and sketched his picture when thinking of the performances, and how it would appear if the creatures who make nature's music, were obliged to take lessons, as girls and boys do, who wish to sing well. Ha! Ha! Ha! What a Picture! Professor Frog giving music lessons to his pupils, while the insects are dancing a waltz in a circle over head. How earnest and imposing the Professor looks through his spectacles, and with what a dignified air he keeps time with the cat-tail in his paw. The young beginners seem very intent on learning the tune, hoping no doubt for the time when they shall be sufficiently accomplished to give one of those charming Spring serenades we love so well to hear, telling us that Winter is passed, and all nature is about to become musical and happy.... Are you laughing because we call the piping of the frogs, music? Well, we know Jenny Lind, or Jenny Wren can either of them make rather sweeter sounds, but when we listen to the meaning of the frogs notes, we hear real music in it—and the sound itself is not so bad either. Listen to the deep bass of that old patriarch seated on a projecting root just on the water's edge, as he brings out his bellowing "*chug gr-r-rum, gr-r-rum,*" and hear his lively little grandson, perhaps, with his sharp treble, "*pe-leet, pe-leet,*" sounding out from the cup of a water-lily, where he has been taking a nap; and then what a musical *ker-chung* they both give, when you suddenly raise your fishing rod, as you get a glorious nibble. But what do they mean with all their curious noises? Every note they give, says "we're happy," and there's music in that surely; and thus even their humble song praises the Creator who gives them enjoyment.

OUR PET FROG.

In our sanctum here, we have an *aquarium*, or glass case, filled with water for the accommodation of some fishes and other water inhabitants. Among them is a frog that formerly lived in the country, but was brought here by a friend and introduced to city society. He was only a tad-pole (pollywog) then, but we have seen him push out his legs, and lose his tail, which at first answered the double purpose of a rudder and sculling oar, and he now rejoices in full developed frog-hood. Although he might perhaps enjoy his freedom better, where he could roam about at will, and play *hop-scotch* and *leap-frog* with his old companions, he takes things very philosophically. Most of the time, he sits perched upon a little rock in the middle of the aquarium, looking very demure, as if watching what is going on in the office; or perhaps he is thinking of old times. Formerly he had an amphibious companion, a little lizard, or water newt; and although both of these creatures are said to be "cold blooded,"

there appeared to exist a warm friendship between them. The lizard, when tired of swimming about, would always crawl up the rock, and then climb upon the frog's back, and creep up until he was seated with his fore paws upon the frog's head. Master Frog said not a word, but only winked permission when he felt him coming, and patient-



PROFESSOR FROG AND HIS PUPILS.

ly allowed him to occupy his favorite resting place. Occasionally the frog enjoyed a bath, and then he would give a sudden plunge, pitching Master Lizard, heels over head, sprawling into the water. But one of the hungry horned pouts, or catfish, bit off the lizard's tail, and he died one day—of mortification probably—and the frog is now left alone.... It would amuse you to see him eat. He is very particular about his food, which consists of insects. They must be alive and kicking, or he will not notice them—he seems to despise cold victuals. But throw a lively fly or cockroach in the water—the boys often bring him cockroaches—and the frog takes good aim and with a sudden spring, leaps across the aquarium and snaps up the insect in an instant. He has afforded us much pleasure by his maneuvers, and is quite a pet with all in the office. We have seen worse pets than our frog. He certainly keeps on a wiser look, and is not half so mischievous as some of the other animals in our aquarium, that persist in nibbling every green plant we introduce, and thus compel us to change the water every month or two, which the plants would keep pure, if they were allowed to flourish. These animals often remind us of some human animals, who destroy the very things which would conduce to their health and happiness. By the way, have you a water cage—an aquarium? You perhaps remember that we gave you a full description of them some time ago—in Nov. 1857 (Vol. XVI, p. 256).

THE TOAD DOES UNDESS.

In answer to a request that our young friends would inform us, if they ever saw the toad pull off his coat and pants, as described in the Dec. No., Vol. XVIII, p. 371, B. Wentworth writes: "More than sixty years ago," (the old folks do read the children's columns,) he observed an occurrence of the kind, the performance being similar to the account we published. He says: "When the toad stripped the skin from his fore legs and toes, it resembled a person turning the skin from his fore legs and toes, and pulling it off wrong side out." Watch the toads this Summer, and see if you can catch one of them pulling off his clothes and eating them. It will be an amusing sight.

A PIECE OF GUM TO CHEW!

Attention, all! John, what are you chewing and rolling around in your mouth at such a rate; not tobacco surely. "Oh, no Sir, nothing but chewing gum; there's no harm in that I hope." Wait a moment, let us look at the business a little before deciding. If only you and a few of your companions up in Maine there, where spruce trees are so plenty, practiced gum chewing, we might give you our private opinion in the matter, and should not ask the attention of all the *Agriculturist* boys and girls. But rolls of chewing gum are now sold in confectioners' shops, at the druggists, and even on the street corners in many cities and villages, almost as frequently as sugar candy. And, would you believe it? there are large manufacturing for putting it up to supply the great demand. Why, one manufacturer alone has, it is said, sold during the year past, about 70,000 boxes, each box containing 200 rolls, or in all 14,000,000 rolls! Whew! Fourteen million rolls of chewing gum!—How many chewers would that take? Why a million of them, if each one used fourteen rolls. It makes one's jaws ache to think of it. "But what of it? Where's the harm?" say you. We don't know what this gum is made of, it may contain pitch, tar, turpentine, and lumber, or it may all be pure spruce gum—but supposing the article itself to be clean, and not poisonous, it is not harmless. Every time it is pressed against the teeth, it acts like a sucker or air-pump, pulling and straining at the roots, and weakening their delicate nerves, so that very soon decay commences, toothache follows, and the tooth is lost.—The act of chewing makes the saliva (spittle) flow freely into the mouth, causing a person to keep spitting. This habit is filthy; and moreover, the saliva is all needed to aid the food to digest properly in the stomach. A few years of such waste will cause dyspepsia and other diseases. Again, when a boy thus forms the habit of chewing, he seldom stops with gum, but soon tries tobacco, and then good bye to a clean mouth, a sweet breath, good teeth, and—the favor of the ladies! Now John, out with your gum and tell your companions what we have told you, and see if your example will not induce them to give up the injurious practice.

A QUESTION IN ARITHMETIC.

You who are old enough to use figures, may reckon how many dollars the above amount of chewing gum (14,000,000 rolls) costs at a cent a stick. How many whole farms of 100 acres each would it buy at \$14 per acre? How many acres of land are the boys and girls chewing up. How many acres, reckoning the land at the Government price of a dollar and a quarter per acre?

WHICH WAS CAUGHT.

A friend communicates the following, which he says occurred when he was a boy. He had been fishing on the salt water, using for bait, large hard clams, which, you know, have strong jaws (shells), and very powerful muscles to hold them tight when closed. Two of these were brought home, and left in the basket, which was set in the kitchen for the night. About twelve o'clock, a great racket was heard around the house. Bump, bump, bump it went, as if some one was trying to crack a hard nut, or pound open a box. The family were quite alarmed, and ran to the kitchen to discover the cause. There, a large rat was running frantically around the room, with one of the clams fastened to his nose, which he was vainly trying to shake off. He had found the bivalve with his shell partly open, and tried to steal the savory meat within, when he was suddenly nipped, and could not escape. Of course, he was speedily killed—a warning to thieves, and to those who poke their noses into other people's concerns.

"Jimmy, do you go to school?"—"Yes Sir, to the school kept by Miss Post."—"Miss Post! not a whipping Post, I hope."—"O no, sir, a guide Post!"



Into which are thrown all sorts of paragraphs—such as NOTES and REPLIES to CORRESPONDENTS, with Useful or interesting Extracts from their Letters, &c., &c.—to be drawn from as we have room left here.

To Correspondents—Questions yet Unanswered.—Probably more letters of inquiry on practical topics are addressed to the *Agriculturist* than to any other periodical in the country. This is due not alone to the large and wide spread circulation of this journal, but especially to the fact that it is mainly devoted to those departments of labor, which involve an almost endless variety of details. How many questions are connected with the selection, breeding, rearing, and care of animals; so of the multitudinous field crops, fruits, garden vegetables, flowers, and household labors. Why, one man could ask more questions on these topics than ten of the wisest men could answer intelligently and thoroughly. What must be the result, then, when there are fifty thousand practical, thinking men, all reading the same journal? We have at this very moment not less than four or five hundred specific inquiries, embracing all sorts of agricultural and household subjects. Many of these we shall feel able to respond to promptly as we come to them. Many others will each require hours of thought, inquiry, and investigation. Thus, for example, in the first three letters taken at random, we read: "What is the comparative value of lime and unleached ashes from different kinds of wood?" "What is the Lapland Kale; will it grow here; where can the seed be obtained?" "What are the respective merits of the different farm mills before the public—and which would you recommend?" And perhaps the next three, five, ten, or a hundred letters, will contain similar queries. We could give an off-hand opinion on nearly all of these topics; but we trust our readers look for something more than this; they want only well grounded opinions—at least we are only willing to offer such; and so at the risk of losing an editor's reputation for knowing everything, we must, with the assistance of our associates, take up these topics as we can. We seldom throw aside any query of general interest, but keep every thing of this character until it becomes practicable to respond by a direct answer, or by a general article covering the ground. [There is not a number of the *Agriculturist* printed, in which there are not many single paragraphs that have each cost some one of the editors hours of investigation and thought. A single recent article (on sun-dials) has been on the writer's mind for a year or more, and he has written perhaps a score of letters, and examined thousands of pages of printed matter, to be able to write what may have appeared to the reader to have been a mere off-hand sketch. And the same may be said of many other articles.]

Questions upon Fruit Trees, etc.—Answers to many of these will be found scattered through the Calendar of Operations, on pages 98, 99, etc.

Trees Partly Buried.—J. B. Firth, Wayne Co., Mich. Where earth is raised about the trunks of large trees by grading or otherwise, they will sometimes live, and may be trimmed up to keep their proportions. In a majority of cases, it will be better to set new trees than to attempt raising the old ones.

Apples for Minnesota.—S. Schultz, Fillmore Co., Minn. Rhode Island Greening, Twenty Ounce Pippin, Ribston Pippin, Esopus Spitzenberg, and Yellow Belleflower, will probably succeed with you, and are desirable Winter apples; while Early Harvest, Gravenstein, Porter, and American Summer Pearmain, are good early and Autumn sorts. Perhaps other fine varieties are known to succeed well in your immediate vicinity. If so, plant them. Set the trees no deeper than they grew in the nursery, use the same earth dug out of the hole, if rich; if not, add a little compost, or introduce good soil, and set 30 feet apart for the general orchard.

Various Grapes—The best.—In response to the question on page 83 last month, Messrs. Bissell & Salter say: "We do recognize the descriptions, but not as belonging to our 'new and costly varieties'—in fact we have few varieties at any price, which answer the descriptions of those 'American grapes two centuries ago'; and of these the Erickson and Dartmouth are so nearly alike, as to be almost one and the same variety. The Charter Oak is another of these varieties; but we consider it utterly worthless—good for nothing. [So do

we. Ed.] The Northern Muscadine is one of the best Fox grapes, even better than the Perkins. But we recommend none of the Fox grapes as worthy of cultivation, except under peculiar circumstances, or for very early ripening, etc. We grow many vines, high-priced, low-priced, and fancy, simply because it is our business to supply what the market demands, but we would under no circumstances urge a man to buy a plant, because it is a high-priced kind. We do advise people to buy the Delaware, because it is good, and because every Horticultural Society in the U. S. has thus far placed it at the head of their several lists of hardy, native American grapes. A grape so unanimously recommended will bear urging.... We also recommend Diana, because it and the Concord are only surpassed by the Delaware". [We place the Hartford Prolific nearly on a par with, or equal to the Concord. The Delaware, Diana, and Concord, or the Hartford Prolific, are good enough, and give variety enough for general cultivation.—Ed.]

Arbor Vite for Hedges.—Alex. Rankin, Kansas. The Arbor Vite is planted for ornamental purposes, as a screen, and to shelter grounds, rather than to fence against stock. For the latter purpose, Buckthorn, Honey Locust, or Osage Orange are better.

Ground Hemlock (*Taxus baccata*).—H. Weaver, Hamilton, Pa. By your sketch and description of the evergreen shrub alluded to, it is recognized as that of the American Yew, usually called ground Hemlock. The shrub or bush is quite straggling in habit, not very common, nor of much beauty.

Patent Insect Powders.—I. Pearre, Frederic Co., Md. Various poisons will kill insects if properly applied. Mercurial ointment well rubbed into the back of every midge, weevil, and caterpillar would be a sure remedy—the difficulty is, to apply it. So of the greatly advertised insect powders.... One man has a patent belows for projecting the powder forcibly upon the insects. A housekeeper would have quite a time of it, "puffing and blowing" through every crack where ants, cockroaches, and other vermin hide! We can not recommend any one of these insect powders.

To Destroy Moles.—Frederic F. Nuide, King George Co., Va., writes that moles may be destroyed by placing in their paths, pills made of a grain of calomel each, mixed with a little corn bread. [Why not use arsenic or strychnine if it is desirable to destroy them.—Ed.] He also states that in that section, the Castor Oil Plant or Palma Christi, (*Ricinus Communis*), is grown in gardens with a belief that moles will not remain in the vicinity where it is raised.

That Nameless Plant.—"H." Biddeford, Me., writes that from the brief description of the plant noticed in the Jan. *Agriculturist*, page 19, he gives a Yankee guess that it is *Goodyera pubescens*, or *G. repens*, of the order Orchidaceae. Mr. Ignatz Pilat, of the Central Park office in this city, also gives the latter name, *G. repens*. Referring to Gray's Manual, we find the description corresponds so nearly, that there is little doubt of the identity.

Planting Tansy around Peach Trees.—S. Huff, Phelps County, Mo., recommends this to keep worms off, and says he has tried it. It may be a partial remedy against some kinds of insects, but probably not many. The fact that we dislike the bitter tansy, is not a certain indication that any of the insect tribes shun it—their tastes are unlike ours.

Coal Tar a Preventive of Borers.—T. F. Jenkins, Orange County, N. Y., finds coal tar applied to the trunks of his fruit trees, for about a foot from the ground upwards, a sure preventive. This is, doubtless the case; but the tar applied direct, often injures the tree. It may be spread upon paper, and wound about the tree without danger. The paper itself is usually sufficient.

Buist's Flower Garden Directory.—F. A. Schultz, St. Louis Co., Mo. This book gives the botanical and most of the common names of flowers, with directions for culture. Good, for a small, practical work.

Barometers for Farmers.—L. Gibbs, Trumbull Co., Ohio. We believe a barometer one of the most useful things on a farm. Their cost, their liability to breakage, and the difficulty of adjusting them by unskillful persons, have prevented their introduction generally. We have recently examined an aneroid or spring barometer, now manufactured in this country, which dispenses with mercury, and is very convenient. It appears to be a very good instrument, and after a careful investigation of its accuracy and merits, we shall tell our readers more about it. We think it will be the instrument for common use.

Tar on Seed Corn.—J. B. Pease, of Stearns Co., Minn., asks how to use coal tar on corn, to prevent crows from pulling it. Ans.—Thin it with a little water so that the corn can be stirred around easily, then dry the corn

with lime or ashes. Common tar is quite as good as coal or gas tar, though neither of them will always prevent hungry crows from pulling the plants. The tar and lime, or ashes, are good for the seed—crows or no crows.

Wrens.—What good do they do? O. W. True, a Maine boy, writes that, like most boys in a new country, he was brought up to believe the wren a naughty marauding bird, delighting in destroying eggs of other birds, and doing all manner of mischief, and that this, and indeed all kinds of birds, were lawful game for every gunner. He rightly thinks, that as soon as farmer boys are taught the real uses of any particular bird, they will become interested in its doings, and in its preservation, just as much as in any useful domestic animal. He suggests that some one entirely familiar with the habits, food, etc., of the wren, should give through the *Agriculturist* a brief account of them.

Artesian Wells—An Inquiry.—An item is going the rounds, to the effect that the deepest Artesian Well in the world is at Columbus, Ohio; that it is 2,300 feet deep; and that it is proposed to carry it still deeper if money can be raised. We would like to know the truth of this statement, and if true to also learn some particulars of the method of boring, size of the cavity, and any other particulars of interest. Perhaps some subscribers residing at or near Columbus, can give the information.

Deep Plowing—Planting Wheat.—Joseph Lynn, of St. Clair Co., Ill., says he may be getting insane, (as was hinted in a recent number of the *Agriculturist*), but his insanity seems to pay, for his insane plowing, deep and close, last Spring, brought a much larger yield of corn and oats. He is so far gone, as to try planting wheat: that is, he last Fall plowed 10 acres 8 inches deep, using three horses abreast, and going twice in the furrow. He then marked it off in rows, and dropped the seed by hand—13 bushels on the 10 acres—covering it with a one-horse plow. It has made an excellent growth, and so far promises well. We shall be glad to hear the result at harvest.

Manure Questions—Bones.—These are so numerous, that we are compelled to refer inquirers to the chapters on Manure, now being published in this journal. That series of articles will, before it closes, probably answer every question yet asked, and many others. With regard to bones, we will here say briefly, to some two dozen questions before us, that where immediate effect is desired, they should be reduced to the finest powder. For fruit-trees and vines, where the effect is to be prolonged over many years, merely breaking them to convenient pieces will answer. On good soil, we use three to five barrels per acre for field culture, and twice as much in the garden. On poor soils a larger amount is needed. We use little other manure; bone saw-dust is the thing for us, no matter what the crop.

Manuring and Sub-soiling.—Shall we manure and sub-soil land the same year? C. and E. Chatfield, of Lincoln Co., Me. Certainly, stir the sub-soil well, and manure the surface soil; either operation only makes the other more effective.

Large Yield of Wheat.—R. B. Haviland, Cayuga Co., N. Y., raised last season 772 bushels of wheat on 18½ acres, a little over 41 bushels per acre. The soil was a retentive clay but thoroughly underdrained with tile. It was top-dressed with 4 bbls. of salt, and 5 bbls. plaster. We presume the ground was otherwise well manured, though no statement is given. The draining helped to do the business.

Peach Blow Potatoes.—Z. Colgrove, Warren Co., Pa. We know but one variety of the Peach Blow Potato; it may be slightly changed in appearance by difference in soils. It is white fleshed, boiling somewhat dry and mealy, and has latterly been a favorite with many in this vicinity. Last season, however, it rotted about as badly as other varieties, and we fear it will not long retain its good name.

Internal breaking of an Egg.—A subscriber, who says he lately lost a valuable hen by the internal breaking of her egg, asks for information as to proper treatment, from some one who has had experience with such cases.

Sending Eggs by Express.—Mrs. J. C. Burbrige, Pike Co., Mo. The Poland fowl eggs might be obtained at the East, and if carefully packed and carried, some of them would probably hatch, but you would run considerable risk of being as badly off for chickens, as the milk-maid in the fable. Any one of those who advertise poultry in this journal, would doubtless be able to supply you with the eggs, or what would be better, with the fowls themselves. You might correspond with C. N. Bement, Poughkeepsie, N. Y., or Richard McCormick, jr., Woodhaven, Long Island, N. Y.

Making Sun Dials.—To many inquirers. A plain description of the method of making these will be given after the Spring work is over—probably in June.

Seeds for Free Distribution in 1860.

REVISED AND ABBRIDGED CATALOGUE.

Every subscriber to the present volume, not having done so, is invited to select four or five parcels of seed from the list below. The seeds can be called for at the office, or sent by express, when for large clubs, or they will be put up and forwarded by mail if post-paid letter envelopes are provided.

If to go by mail, the applicant must furnish prepaid envelopes, of ordinary size, prepared as here shown—that is: Put the figures corresponding to the Catalogue plainly on the upper left hand of the envelope, and put all the postage stamps upon the right side of the envelope—put one above the other, when two or more are needed, to prevent the seeds being crushed in the stamping process, in the Post-Office. One ordinary envelope will generally hold the amount of seed-packages carried by two or three stamps. The amount of stamps can be calculated from the Catalogue. Single 1-cent stamps on letters are of no value, unless there be even three of them, as letter postage is rated by the half ounce.

N. B. For the Pacific coast, 10-cent stamps must be used where 3-cent stamps are named in the list. Letters to Canada need not necessarily be prepaid here. (If to be prepaid send coins, and not Canada Stamps, as these are not received at our P. O.)

SEEDS STILL ON HAND.

[For Descriptive Notes upon these Seeds see pages 3 and 4 of January number.]

Field Seeds.

- 2—Improved King Philip Corn—Single, double, or triple packages, as may be desired, requiring one, two, or three 3-cent stamps.
- 3—Stowell's Sweet Corn—Same packages as No. 2.
- 94—Crystal Flint or Hominy Corn—Same as No. 2.
- 6—Ashcroft's Swedish Turnip—Half of 3-cent stamp.
- 7—River's Swedish Stubble Turnip—do. do.
- 98—Long Red Mangold Wurtzel—One 3-cent stamp.
- 101—Improved Long Orange Carrot—1/4 of a 3-cent stamp.

Vegetable or Garden Seeds.

- 8—Daniel O'Rourke Pea—Packages same as No. 2.
- 9—Champion of England Pea—One 3-cent stamp.
- 99—Prince Albert Pea—do. do.
- 57—Eugenie Pea—do. do.
- 58—Napoleon Pea—do. do.
- 12—Green Kohl Rabi—One-third of a 3-cent stamp.
- 13—Enfield Market Cabbage—do. do.
- 15—Mammoth Cabbage Lettuce—do. do.
- 100—Early Purple Cape Broccoli—do. do.
- 95—Hubbard Squash—do. do.
- 109—Mammoth Red Tomato—do. do.
- 72—Imported Brussels Sprouts—do. do.
- 76—Musk Melon—do. do.
- 77—Water Melon—do. do.
- 103—Sage—do. do.
- 104—Thyme—do. do.
- 105—Chili Red Pepper—do. do.
- 106—Sweet Marjoram—do. do.
- 17—Red Strap-Leaf Turnip—One-half of a 3-cent stamp.
- 74—Solid White Celery—do. do.
- 75—Green Curled Endive—do. do.
- 55—White Globe Onion—do. do.
- 71—Long White French Turnip—One 3-cent stamp.
- 107—Giant Asparagus—do. do.

Flower, Fruit, and Ornamental Seeds.

- 89—Cotton Plant (2 kinds)—One 3-cent stamp.
- 90—Norway Spruce Seed—One-half of a 3-cent stamp.
- 91—Arbor Vitæ Seed—do. do.
- 111—Castor Oil Bean—do. do.
- 110—New-Rochelle Blackberry—1/4 of a 3-cent stamp.

On an average five or six of the following 27 varieties will go under a 3-cent stamp

- 23—Mignonette.
- 25—Mixed Nasturtiums.
- 27—Extra Cockcomb.
- 30—Tassel Flower.
- 31—Chinese Pink.
- 33—Cypress Vine.
- 34—China Asters, mixed.
- 35—German Asters, mixed.
- 38—Sweet William.
- 42—Foxglove.
- 47—Morning Glory, mixed.
- 49—Candytuft.
- 50—Schizanthus.
- 78—Ageratum Mexicanum.
- 80—Yellow Hawkweed.
- 84—African Marigold.
- 85—Galliardia, mixed.
- 87—Coreopsis.
- 114—Mixed Petunia.
- 115—Mix. Dbl. Hollyhocks.
- 116—Mourning Bride.
- 118—Bee Larkspur.
- 121—Trumpet Creeper.
- 122—M^d Canterbury Bells.
- 123—Gilia nivalis.
- 124—Whitavia.
- 126—Centranthus.

The Premiums Still Open.

[FOR SPECIAL PREMIUMS SEE LAST PAGE.]

[The premiums below are offered for subscribers to Volume XIX of the American Agriculturist whenever received. Those having partial lists made up can complete them, and other new lists can still be formed.]

N. B. These premiums are not offered for competition, but as direct pay for time, labor, and expense incurred by canvassers. The premiums are absolute in each case, and not dependent upon what some unknown person is doing. Every canvasser knows just what he or she is working for. Every article is the best of its kind, and will be selected with special care by the Publisher.

REMARKS.—1. The premiums below, except No. IV, are all for NEW SUBSCRIBERS ONLY, as we can only afford to pay premiums for once on the same subscriber. But in making up any premium lists, two renewals of old subscriptions, collected and forwarded by the canvasser, may always be counted as one new name. Names need not all be at the same Post Office.

2. Of course but one premium can be paid on the same name. The canvasser will choose his own premium.

3 Every person collecting names for premiums can send in the names with the money as fast as received, so that the subscribers may begin to receive their papers; but if designed for premiums, a double list of each lot of names should be sent, one of them marked at the top, "For premiums," and with the name of the sender.

Any premium will be paid as soon as the list for it is completed, if we have the duplicate lists to refer to.

Premium III.—Every person sending in a club of 10 new subscribers at 80 cents each, may order a free copy of either Vol. XVI, or Vol. XVII, or Vol. XVIII, which will be sent in numbers, post-paid.

Premium IV.—Every person sending 15 new or old subscribers at 80 cents each, will be entitled to 16 copies (that is one extra copy), for the coming year.

Premium V.—Every person sending 25 new subscribers at 80 cents each, will be entitled to the three Volumes, XVI, XVII, and XVIII, sent in numbers post-paid.

Premium VI.—Every person sending 30 new subscribers at 80 cents each, will be entitled to a silver-cased pocket Microscope—with Coddington lens. Value \$4. Sent by mail securely packed and post-paid. (See Premium 18.)

Premium VII.—Every person sending 45 new subscribers at 80 cents each, will be entitled to a copy of the large new Pictorial Edition of Webster's Unabridged Dictionary. Price \$6.50. It weighs 8 1/2 lbs, and can go by express, or be sent by mail at 1 cent per ounce within 3000 miles, or 2 cents per ounce over 3000 miles. (Expense after leaving the city to be paid by recipient.)

Premium IX.—Every person sending 144 new subscribers at 80 cents each, (or 100 at \$1 each), will be presented with one of Wheeler & Wilson's best \$50 Sewing Machines, new from the factory, and of the very best make. There is no better family machine than this made, as we have proved by nearly two years' use in our own family. We want no better.—The machines will be selected at the manufactory, be well boxed, and forwarded without expense to the recipient, except for freight charges after leaving the city. Full instructions for setting up and using go with each machine.

Premium XII.—To every person sending 130 new subscribers at 80 cents each, (or 95 at \$1 each), we will present Appleton's New American Encyclopedia, now in course of publication, consisting of fifteen large volumes of 770 pages each. This is a magnificent work, forming a whole library embracing every topic of human knowledge. Eight volumes are now ready, and the remaining seven will be furnished as fast as issued. Publisher's price, \$45.

[Premiums 13 to 18, for Mowing Machines, Plows, Cultivators, etc., are still open, but omitted to save space. For particulars see last month's paper.]

Premium XIX.—Books. Whenever desired, instead of other premiums, the publisher will pay premiums in books as follows: Every person making up a club of 20 or more new subscribers, may select any Agricultural or Horticultural Books from C. M. Saxton & Co's Catalogue, (which is advertised on page 316 October Agriculturist) to the amount of 10 cents for every subscriber, sent in at 80 cents each. Persons making up a club for any of the premiums, and getting some names over the required amount, will be entitled to books for the surplus names. Thus, a person getting 55 subscribers can take for 45 names premium VII, or XVII, and also \$1 worth of books for the extra 10 names; and so in other cases.

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PUBLISHER OF AMERICAN AGRICULTURIST.

Market Review, Weather Notes, etc.

AMERICAN AGRICULTURIST OFFICE,
NEW YORK, Saturday Evening, March 17, 1860.

The leap-year day gained at the end of February, was counter-balanced by the general observance of Feb. 22 as a holiday, so that we have had but a short month's business since our last report; every day's business affects the aggregate of transactions of a month by about four per cent. As indicated by the tables below, there has been a material diminution in the receipts of Breadstuffs, notwithstanding the early opening of navigation on the Hudson River. The sales of Flour, Wheat, Corn, and Barley, have been heavier than those reported in our last, and the amount in the hands of receivers has been much reduced. With a good inquiry, especially for the better grades, Wheat Flour has advanced. The demand has been mainly for home use. There is less disposition to purchase freely. The general opinion of buyers is that prices have reached the highest point. Yet holders are very firm, and not inclined to force their supplies on the market. In Wheat, an important improvement has occurred. The demand has been animated, while sellers have offered their stocks reservedly. Winter Wheat—which is scarce—is now 15 to 20 cents per bushel dearer than four weeks ago. The rise in prices of Spring Wheat is not so great, but is still quite encouraging. This description is plenty; yet, as it is anticipated that the Spring and Summer receipts will be light, holders are not eager to sell. Millers have been the principal purchasers. Little has been bought by shippers, or by speculators. Little Corn has arrived freely and prices have favored buyers. The demand has been fair. Rye has been moderately dealt in at about former rates. Barley has been in active request and has advanced. Oats have been abundant and depressed. The transactions in Cotton have been moderate. Prices have declined 1/4 ct. per lb. It is now generally believed that the yield of the last crop will reach 4,500,000 bales. Large as such a result is, it will not yield more clean, desirable Cotton than is likely to be wanted. The proportion of low, poor staple and sandy Cotton now in stock is very great, and these qualities will be the first to experience any material decline. Hay has been in demand at steady prices. The receipts have been light. Hops, Seeds and Rice have been less active, and have declined in value. A lively business has been transacted in Provisions. Hog products have been cheaper. Tobacco has attracted more attention at uniform quotations. The movements in Wool have been unimportant, though prices have been reduced. The transactions in most other kinds of Produce have been restricted.

CURRENT WHOLESALE PRICES.

	Feb. 18.	March. 17.
Flour—Superior to Extra State	\$3 00 @ 5 35	\$3 25 @ 5 60
Superfine Western	5 00 @ 5 10	5 25 @ 5 40
Extra Western	5 30 @ 7 25	5 45 @ 7 50
Fancy to Extra Genesee	5 45 @ 7 25	5 70 @ 7 50
Super to Extra Southern	5 40 @ 7 25	5 10 @ 7 50
Rye Flour—Fine and Super	6 00 @ 4 40	5 60 @ 4 40
CORN MEAL	3 40 @ 4 15	3 55 @ 4 15
WHEAT—Canada White	1 30 @ 1 45	1 50 @ 1 65
Western White	1 30 @ 1 50	1 50 @ 1 70
Southern White	1 45 @ 1 55	1 50 @ 1 70
All kinds of Flour	1 18 @ 1 30	1 25 @ 1 50
CORN—Yellow	78 @ 79	76 @ 79
White	78 @ 79	75 @ 79
Mixed	78 @ 79	77 @ 78
OATS—Western	44 @ 45	43 @ 45
State	45 @ 46	43 1/2 @ 44 1/2
Southern	38 @ 41	38 @ 40
RYE	86 @ 87	85 @ 87
BARLEY	69 @ 86	75 @ 88
White Beans	1 00 @ 1 15	90 @ 1 12 1/2
HAY, in bales, per 100 lbs.	93 1/2 @ 1 12 1/2	87 1/2 @ 1 12 1/2
Cotton—Middlings, per lb.	11 1/2 @ 11 1/2	11 1/2 @ 11 1/2
RICE, per 100 lbs.	3 75 @ 4 50	3 50 @ 4 25
HOPS, crop of 1859 per lb.	9 @ 18	6 @ 15
PORK—Old Mess, per bbl.	17 50 @ 18	17 25 @ 17 35
Prime, old, per bbl.	12 37 @ 12 50	12 50 @ 12 50
BEEF—Repacked Mess.	9 00 @ 10 00	9 25 @ 10 50
Country mess	5 25 @ 5 50	5 25 @ 5 50
Hogs, Dressed corn, per lb.	8 @ 8 1/2	8 1/2 @ 8 1/2
Lard, in bbls, per lb.	11 @ 11 1/2	10 1/2 @ 11 1/2
BUTTER—Western, per lb.	11 @ 15	11 @ 15
State, per lb.	14 @ 22	14 @ 21
CHEESE, per lb.	9 1/2 @ 11 1/2	10 @ 13
EGGS—Fresh, per dozen	18 @ 19	19 @ 20
POULTRY—Fowls, per lb.	10 @ 12	10 @ 12
Geese, per lb.	8 @ 10	8 @ 10
Ducks, per lb.	15 @ 17	18 @ 20
Turkeys, per lb.	11 @ 14	15 @ 18
Wild Pigeons, per doz.	5 @ 6	5 @ 6
Partridges, per pair	1 25 @ 1 50	1 25 @ 1 50
Venison, carcass, per lb.	5 @ 7	5 @ 7
FEATHERS, Live Geese per lb.	42 @ 48	42 1/2 @ 50
SEED—Clover, per lb.	8 @ 8 1/2	7 1/2 @ 8
Timothy, per bushel	2 50 @ 3 25	3 00 @ 3 62 1/2
SUGAR, Brown, per lb.	8 1/2 @ 8 1/2	6 @ 8 1/2
MOLASSES, New-Orleans, pr gal	44 @ 48	44 @ 49
COFFEE, Rio, per lb.	11 1/2 @ 12 1/2	12 @ 14 1/2
TOBACCO—Kentucky, &c. pr lb	4 @ 12 1/2	4 @ 12 1/2
Seed Leaf, per lb.	6 @ 25	6 @ 25
Wool—Domestic, fleece, per lb.	58 @ 60	54 @ 58
Domestic, pulled, per lb.	28 @ 50	28 @ 48
HEMP—Undr'd Amer'n pr ton	120 @ 150	120 @ 150
Dressed American, per ton	160 @ 200	160 @ 200
TALLOW, per lb.	10 1/2 @ 10 1/2	10 1/2 @ 10 1/2
OIL CARE, per ton	32 50 @ 36 00	33 00 @ 36 15
APPLES—Dried, per lb.	6 @ 7 1/2	5 @ 7
Dried Peaches—pr lb. South'n	10 @ 15	10 @ 16
Dried Raspberries, per lb.	18 @ 22	18 @ 20
POTATOES—Merced, p. bbl.	1 67 @ 2 12	1 75 @ 2 12
Peach Blows, per bbl.	1 00 @ 1 75	1 25 @ 1 75
Nova Scotia, per bushel	55 @ 60	55 @ 60
CABBAGES, per 100	3 00 @ 5 00	3 00 @ 5 00
ONIONS, Red, per bbl.	1 75 @ 2	2 25 @ 3
White and Yellow, per bush.	2 00 @ 2 50	2 00 @ 3 25
TURNIPS, Rutabaga, per bbl.	1 12 @ 1 25	1 12 @ 1 25
APPLES, Winter, per bbl.	2 75 @ 3 75	2 75 @ 4 00
CRANBERRIES, per bbl.	9 00 @ 13 00	10 00 @ 12 00

TRANSACTIONS AT THE N. Y. MARKETS.

RECEIPTS.	Flour, Wheat, Corn, Rye, Barley, Oats.
25 bus. days this mon.	67,819 4,312 193,813 6,915 39,965 62,933
26 bus. ds. last mon.	62,468 21,732 308,487 7,046 61,157 72,370
SALES.	Flour, Wheat, Corn, Rye, Barley.
25 business days this mon.	293,040 325,930 445,100 44,130 21,500
26 business days last mon.	244,468 139,000 371,000 45,600 205,600
Breadstuffs exported from N. Y., from Jan. 1 to March 14, 1860.	
Wheat Flour, bbls.	93,803 112,829
Rye Flour, bbls.	1,506 665
Corn Meal, bbls.	16,665 13,910
Wheat, bush.	17,349 117,925
Corn, bush.	31,383 78,975

The following is a statement of the exports of the principal kinds of Breadstuffs from the Atlantic ports of the United States since Sept. 1, 1859:

To Great Britain and Ireland.				
From	To Date	Flour, bbls.	Wheat, bu.	Corn, bu.
New-York....	Mar. 8, 1860	191,828	448,733	17,063
New-Orleans....	Mar. 1, 1860	8	—	5,025
Philadelphia....	Mar. 1, 1860	7,572	75,777	4,250
Baltimore....	Mar. 1, 1860	—	—	—
Boston....	Mar. 1, 1860	733	—	—
Other Ports....	Mar. 1, 1860	15	5,527	—
Total from Sept. 1, 1859....				
		200,156	530,037	26,338
To about same period, 1858....				
		85,758	415,800	319,452
To about same period, 1857....				
		712,496	3,337,332	1,515,818
To about same period, 1856....				
		682,060	6,739,339	3,249,414

To the Continent.				
From	To Date	Flour, bbls.	Wheat, bu.	Corn, bu.
New-York....	Feb. 28, 1860	26,419	—	3,508
Other Ports....	Latest dates.	5,176	—	2,060

N. Y. Live Stock Markets.—THE CATTLE MARKETS have been unusually well supplied with beefs during a month past. Receipts for four weeks just ended, 15,520 bullocks, or an average of 3,880 per week, against a weekly average for March 1859, of 3,322 head. Prices have ruled low, closing March 14th, about 4c. per lb. estimated dressed weight lower than four weeks ago. Prices this week: Premium cattle 10c. @ 11c. per lb. net weight; Prime 9c. @ 10c.; Medium 8c. @ 9c.; Poor 6c. @ 7c. with a general average for all sold of 8c. @ 8 1/2c.

VEAL CALVES.—As usual at this season receipts are on the increase. Receipts for four weeks just ended, 2,136 all of which sold readily at 6c. @ 7c. per lb. live weight for prime, with 7c. for extras. Common calves are worth 5c. @ 6c. per lb., and "bobs" \$2 @ \$2 50 each.

SHEEP AND LAMBS.—These continue to dwindle in numbers as the lambing and shearing season approaches. Receipts for past four weeks, only 22,680. The market is lively, especially for good stock. Prices: 6c. @ 7c. per lb. live weight for prime to extra, and 5c. @ 6c. for common to fair. A few sheared sheep brought 5 1/2c. It is quite too early to expose sheared sheep in this climate.

HOGS.—Receipts moderate during the past month, numbering 16,045. Prices have advanced a little. Corn hogs now sell at 6 1/2c. @ 6 3/4c. per lb. live weight, and distillery hogs at 6c. @ 6 1/2c. The demand is good.

The Weather for the month ending Mar. 17, has been variable, with touches both of Winter and Summer. The season has been unusually dry, and now the frost is out of the ground and farmers have commenced their outdoor labors. Our DAILY NOTES condensed, read thus: February 18, heaviest snow storm of the season, making good sleighing—19, clear, cool and windy—20, 21, fine mild days—22, cloudy A. M. rain P. M.—23, heavy fog, then clear with showers P. M.—24, fine warm day—25, cloudy with snow squalls—26, 27, 28, clear and fine—29, fog and cloudy—March 1, cloudy with fog—2, 3, 4, clear and warm—5, cooler—6, clear A. M. cloudy P. M. rain at night—7, fog and rain—8, rain—9, light snow A. M. clear and mild P. M.—10, fine A. M. cloudy P. M.—11, cloudy, with cold wind—12, light rain A. M. clear P. M.—13, cloudy, cool—14, clear—15, clear and summery—16, clear and fine—17, cloudy.

For Thermometrical Notes see last page, (128).

Advertisements.

Advertisements to be sure of insertion must be received at latest by the 15th of the preceding month.

TERMS—(invariably cash before insertion):

FOR THE ENGLISH EDITION ONLY.
Thirty-three and one third cents per line of space for each insertion, (three lines for \$1)
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HAIGHT & EMENS, 226 Front-st., New-York.
Refers to the Editor American Agriculturist.
E. R. Cooper, Cashier Market Bank, New-York.

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Editor Tribune.

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Any one remitting \$3.00, will receive the four assortments, postage free.

The Seeds contained in the above assortments are of his own selection. Purchasers who prefer to make their selection from the Catalogue, will be entitled to a discount proportionate to the quantity ordered.

All orders must be accompanied with the Cash, which can be remitted in current bank bills or postage stamps.

Please address B. K. BLISS, Springfield, Mass.

Flower Seeds by Mail.

Our own selection of

25 Varieties for..... \$1.00

50 do..... 2.00

100 do..... 4.00

Persons ordering either of the above assortments may rely upon a beautiful collection.

J. M. THORBURN & CO., 15 John-st., New-York.

Flower Seeds by Mail.

Flower Seeds.

BY MAIL POST-PAID OR OTHERWISE.

The subscriber has for many years past spared no pains or expense in procuring both in Europe and this country every variety of *Annual Flower Seeds*, that could be obtained, and after cultivating over one thousand varieties, has selected about one hundred kinds with a view of including all the most desirable for hardy garden cultivation, a list of which will be sent to any one. And for \$1 THIRTY-THREE kinds of any on the list will be sent by mail, post-paid.

G. R. GARRETTSON, Flushing, Long Island, N. Y.

Flower Seeds.

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BRIDGEMAN'S
HORTICULTURAL ESTABLISHMENT,
Nos. 876 & 878 BROADWAY,
NEW-YORK.

SEEDS. SEEDS. SEEDS.

The subscriber has now on hand a full supply of GRASS VEGETABLE, HERB, and FLOWER SEEDS, embracing the old favorites, and including several new varieties of superior excellence. For sale (at the lowest market price), for quality and quantity, or in packages for retail trade.

New priced Catalogues furnished on application.

Also an assortment of HORTICULTURAL IMPLEMENTS, AGRICULTURAL AND HORTICULTURAL BOOKS.

All orders attended to promptly, and with exactness.

ALFRED BRIDGEMAN.

New-Rochelle (or Lawton) Black-
berry Plants.

\$30 per Thousand Plants.
\$6 per Hundred do.
\$2 per Twenty five do.
\$1.50 per Dozen do.

CONCORD GRAPE VINES, Strong and fine \$30 per Hundred.
DIANA do. \$50 per Hundred.

ALLEN'S HARDY RASPBERRIES, \$40 per Thousand.

BRINKLE'S ORANGE RASPBERRIES, \$40 per Thousand.

GEO. SEYMOUR & CO., South Norwalk, Conn.

LAWTON BLACKBERRY PLANTS at
greatly reduced prices, warranted genuine: 1000 plants,
\$40.00; 500 do, \$20.00; 100 do, \$5.00.

Also, 10,000 and upwards Albany Strawberry Plants at 75 cts. per 100. Orders solicited.

T. B. NASH, South Norwalk, Conn.

LAWTON BLACKBERRY PLANTS.
Circulars free. WM. LAWTON, New-Rochelle, N. Y.

The Allen Raspberry.
Will be sent after 1st April next, well packed, by express, at \$1 per dozen. \$4 per hundred, \$25 per thousand, on receipt of orders, enclosing the money.

LEWIS F. ALLEN, Black Rock, Erie Co., N. Y. March 1, 1860.

Allen Raspberry Plants.
(Warranted true.)

\$20 for 1000; \$2 for 100; \$2.00 for 50; \$1 for 20 plants. Address JOHN GOMAN, Jr., 51 Murray st., New-York, or GEO. W. TAYLOR, West Bloomfield, N. J.

50,000 WILSON'S ALBANY SEED-
LING STRAWBERRY PLANTS, genuine

kind, warranted true to name, for sale low, as they must be removed from the ground this Spring.

Also, a large quantity of Linnaeus Rhubarb Pie Plant. Price low. The above in quantities to suit. Address S. JUDD STEWART, 333 Pearl-st., New-York.

500,000

WILSON'S ALBANY SEEDLING STRAWBERRY,
\$4 per 1000, 50 cts. per 100.

10,000 Hooker Strawberry..... \$10 per 1000.
30,000 Lawton Blackberry roots, \$30 per 1000, \$4 per 100, \$3 for 50. For sale by C. L. TWING, Lansingburgh, N. Y.

Strawberry Plants.
Wilson's Albany Seedling, and all other varieties of choice

Strawberries, packed to go to any part of the country. Lawton or New-Rochelle Blackberry Plants.

Rhubarb Roots; Asparagus Roots. Raspberry Plants of all good varieties.

Fruit and Ornamental Trees and Shrubs, Evergreens, and all kinds of Plants sent to order, carefully packed.

R. L. ALLEN, 191 Water-st., New-York.

The Hubbard Squash.
Having given the Hubbard Squash its name, and having been the first to introduce it to public notice, I offer the purest seed raised at 12 cents for a package of 50 seed, post paid, or \$2.25 for one pound of seed, post paid, to any part of the United States—California and Oregon an extra dollar. Seed dealers supplied at a discount. It is recommended by Hon. Marshall P. Wilder, Hon. Edward Everett, the keepers of the principal hotels, seed dealers, and the whole Agricultural Press of New-England, as the sweetest, dryest, and richest flavored of all winter squashes. It has succeeded admirably in New-England, the West, in New-York, and in other States.

JAMES J. H. GREGORY, Marblehead, Mass.

HUBBARD SQUASH, WARRANTED
PURE. Packets containing 50 SEEDS will be sent to any address in the Union on receipt of four three cent stamps.

100 Seeds for eight three cent stamps.

Please address B. K. BLISS, Springfield, Mass.

Genuine Hubbard Squash Seed.
45 perfect seeds for 4 three-cent postage stamps.

100 do. 8
Sent post-paid to any address in the Union.

ALLEN & McELWAIN, Springfield, Mass.

NEW SQUASHES.—Honolulu Nectarine
Squash, Pine-Apple Squash, Snow Ball Squash, Mammoth, and the renowned Hubbard Squash, with some other new articles of our own selection for \$1.00 Address "Rural Empire Club," West Macedon, Wayne Co., N. Y.

20,000 True Linnaeus Rhubarb.
Strong Plants at very low prices—a liberal discount allowed on large sales. This is esteemed to be the best and most profitable variety, often yielding more than \$200 to \$400 per acre. Address H. C. FREEMAN, Fruit Nursery, Ravenswood, L. I.

NANSEMOND SWEET POTATOES
for Seed, put up carefully in new barrels, at \$5 a bbl. Order directly from the grower. Plants in their season.

C. B. MURRAY, (late O. S. Murray & Son,) Foster's Crossings Ohio.

Chinese Sugar Cane Seed.
50 Bush. Georgia grown seed at \$2.50. Sacks of 10 lbs. each \$1. Samples for Postage. Address I. W. BRIGGS, West Macedon, N. Y.



Isabella and Catawba Grape Vines

MADE FROM FRUIT WOOD ALONE.

OF proper age for forming Vineyards, cultivated from and containing all the good qualities which the most improved cultivation for over twenty years has conferred on the Croton Point Vineyards, are offered to the public. Those who may purchase will receive such instructions for four years, as will enable them to cultivate the Grape with entire success, provided their locality is not too far north.

The past season, though the coolest and most unfavorable for grape maturing we have had in many years, the subscriber ripened his whole crop, proving that his Isabellas and Catawbas have become perfectly acclimated. This gives him full assurance, that by improved cultivation, pruning, &c., a crop of good fruit can be obtained EVERY YEAR, in most of the Northern, all of the Middle, Western, and Southern States.

N. B. To those who take sufficient to plant six acres, as he directs, he will, when they commence bearing, furnish the owner with one of his Vinedressers, whom he has instructed in his mode of cultivation, and he will do all the labor of the vineyard, and insure the most perfect success. The only charge, a reasonable compensation for the labor. When the purchase is large, and approved paper or other security can be offered, a liberal credit on most of the purchase will be given.

Also, APPLE-QUINCE TREES, (which are sometimes called the Orange Quince,) for sale as above. R. T. U. Also for sale at his PURE WINE AND GRAPE DEPOT, (No. 7 Clinton Hall, Astor Place, N. Y. City), Isabella and Catawba Wine in their PURITY.

All communications addressed to R. T. UNDERHILL, M.D. New-York, or Croton Point, Westchester Co., N. Y., will receive attention.

Iona Vines and Plants.

The subscriber's Catalogue, which is a treatise on the management of the vine, with numerous engravings, will be sent to applicants who enclose paper or other security can be offered, a liberal credit on most of the purchase will be given.

A fine stock of Delaware vines of unequalled quality, for sale singly or in quantity.

Wholesale Catalogue for dealers.

Clubs supplied at a discount.

C. W. GRANT.

Iona, near Peekskill, Westchester Co., N. Y.

P. S.—A good stock of Concord Vines for vineyards or gardens.

The Work on the Vine of F. Reubens, translated by Dr. Chas. Siedhoff, with additions by C. W. Grant, is in Press, and will be published in a few days.

It is profusely illustrated with engravings.

Delaware and Logan Grapes.

I HAVE DISPOSED OF MY LOGAN

AND DELAWARE vines to Messrs. Bissell & Salter of

Rochester, N. Y., to whom I refer those wishing to purchase.

DELAWARE, Ohio, October, 1859. A. THOMSON.

Iona Grape Vines.

The subscriber has accepted the agency for the sale of C. W.

Grant's Iona Grape Vines, and will keep a good supply constantly on hand at the Brooklyn Nursery, Gates Avenue, near

Myrtle Avenue, Brooklyn, L. I. Catalogues sent to applicants who enclose one three-cent stamp.

Also C. W. Grant's large Catalogue to those who enclose two three-cent stamps.

Vines wholesale and retail. Clubs liberally dealt with, etc.

ANDREW S. FULLER.

Grafts, Vines, and Plants.

By Mail, post-paid. See advertisement in Feb. No.

F. A. ROCKWELL, Ridgefield, Conn.

TREE AND SHRUB SEEDS.

Norway Spruce, per lb. \$5

European Silver Fir, do. \$1.00

Balsam Fir, do. 3.00

Hemlock Spruce (clean seed), do. 6.00

American Arbor Vitae (clean seed), do. 6.00

Chinese, do. 3.00

Stone Pine, do. 1.50

Black Austrian Pine, do. 3.00

Scotch Fir, do. 1.50

Scotch Larch, do. 3.00

American Bald Cypress (beautiful), per qt. 30

Strawberry Tree (*Arbutus Unedo*) per oz. 40

Buckthorn, per lb. 1.00

Hop Tree, per oz. 25

Tree Seed Catalogues on application to

J. M. THURN & CO.,

15 John-st., New-York.

FRUIT, SHADE, AND EVERGREEN

TREES.—Stock for Nurserymen, Dealers and Planters.

Public Institutions, Cemeteries and Parks supplied on the most liberal terms.

Priced List and Descriptive Catalogues furnished on application.

DAVID J. GRISCOM,

Evergreen Nursery, Woodbury, N. J.

Ravenswood Fruit Nursery.

WHOLESALE & RETAIL.

BRINKLE'S ORANGE RASPBERRY, unequalled in flavor and

beauty, also very vigorous and productive—is considered

by many as the very best.

BAGLEY'S EVERBEARING RASPBERRY.

LINNEUS RHUBARB—(propagated exclusively from the roots,)

at very low prices to the Trade and Market Gardeners.

DWARF PEAR TREES—Fine two year old trees of the best

selected varieties, well branched—admirable for Garden

planting.

REBECCA and DELAWARE, Diana, Concord, and Hartford Pro-

duce Grape Vines.

NEW-ROCHELLE or LAWTON BLACKBERRY.

NEWMAN'S THORNLESS BLACKBERRY.—Also STRAWBERRIES,

and other RASPBERRIES, &c.

We have a large stock of the above superior varieties, and

offer them to the Trade and Fruit Gardeners at very low prices.

Circulars furnished on application. Address

H. C. FREEMAN, Ravenswood, L. I., near New-York.

All plants delivered at any part of New-York City free of

charge.

JOSEPH E. MACOMBER, Wholesale

Vegetable Seed raiser, Portsmouth, R. I.

[ESTABLISHED IN 1798.]

BLOODGOOD NURSERIES.

FLUSHING, (Long Island,) N. Y.

KING & MURRAY,

(Successors to KING & RIPLEY.)

Respectfully call the attention of Tree Planters, Nurserymen, and Dealers, to their large and well grown stock of Fruit and Ornamental Trees, Flowering Shrubs and Plants, including all the standard and valuable new varieties, which they offer at MODERATE PRICES.

Fruit Trees, Etc.

APPLE, all good kinds, 2 to 6 years, in large quantity.

PEAR, Dwarf, 2 to 4 years, in large quantity.

PEAR, Standard, 3 to 6 years.

PLUM, PEACH, APRICOT, NECTARINE, CHERRY.

WALNUTS and FILBERTS.

CURRENTS and GOOSEBERRIES, of the best English and

American varieties.

GRAPES, Improved hardy native, and exotic.

BLACKBERRY and RASPBERRY, of the various kinds.

STRAWBERRY, in great variety.

RHUBARB, Linneus, Royal Albert, and Victoria.

Evergreen Trees.

NORWAY SPRUCE, 3 to 12 feet.

GINES and FIRS, in variety and sizes.

ARBOR VITAE, American, 2 to 10 feet.

JUNIPERS, YEW, RHODODENDRONS, and many others.

Deciduous Trees.

MAPLES, of all sorts, for Lawns and Avenues.

ELMS, LINDENS, OAKS, ASHES, BEECHES, and ALL

OTHER TREES, both American and European, which are

worthy of cultivation.

Orders sent to KING & MURRAY,

Flushing, Long Island, (N. Y.)

or to their office, 244 Pearl-st., New-York City, will be at-

tended to with promptness, and carefully packed for transportation

to any distant point.

N. B.—Trees delivered free of freight to Fulton Market

Wharf, New-York City.

PRICED CATALOGUES forwarded on application

personally, or by mail.

HIGHLAND NURSERIES, NEWBURGH, N. Y.

A. SAUL, successor to the late A. J. DOWNING & Co.,

Has the pleasure of announcing to the patrons of this old es-

tablishment, and the public in general, that his stock of Fruit

and Ornamental Trees, Shrubs, &c., for sale for the ensuing

Spring Trade, is full and complete, and comprises every thing to

be obtained in his line of business, viz:

A large Stock of Apple, Pear, Cherry, Plum, Peach, Apricot,

Nectarine, and Quince Trees, 1 to 3 years from the bud, and

are of superior quality and growth.

Grape Vines, Native and Foreign, embracing all the new and

rare varieties.

Gooseberries, Currants, Raspberries, Blackberries and Straw-

berries, of all the best proved new and old varieties.

Rhubarb and Asparagus Roots, do. do. do.

ORNAMENTAL TREES.

EVERGREENS.—A very large stock of Norway Spruce, of

all sizes, from 1 to 5 feet; Balsam Fir; European Silver Fir;

Austrian, Scotch, and White Pines; Hemlock and American

Spruces; Arbor Vitae; Junipers (in varieties) of all sizes, 1 to

5 feet high.

DECIDUOUS TREES of extra size for street planting and

for giving immediate effect to Parks, Lawns, Cemeteries, &c.,

such as: Maples, (8 var's); Elms, (10 var's); Ash, (8 var's);

Oaks, (6 var's); Horse chestnuts, Catalpas, Ailanthus, Larch,

Tulip Trees, Negundo, Abele, Mountain Ash, Deciduous Cy-

press, Weeping Willows, American and European Lindens, &c.

FLOWERING SHRUBS, over 50 choice species and varieties.

ROSES, a large collection of Hybrid Perpetual, Hardy Garden

and Moss, China, Bourbon, and Tea.

HEDGE PLANTS, 100,000 Osage Orange Plants of extra

growth, 1 to 3 years old.

HEDGE PLANTS, American Arbor Vitae for screens, &c.

The above stock is all of the best quality and growth, and

will be sold on the most reasonable terms.

A new Catalogue will be ready about the middle of March,

and will be sent to all applicants on enclosing a P. O. stamp to

prepay the same.

Highland Nurseries, Newburgh, Feb. 26th, 1860. A. SAUL.

Walworth Nurseries.

Careful systematic effort, aided by much experience, directed

to growing trees of superior quality; and extensive orchards

now embracing 125 acres and 13,000 trees; furnishing a means

of testing and comparing varieties; enable the proprietor to

furnish trees of most desirable quality, as well as most profit-

able varieties for Orchard Culture. Large space is given to

trees in the Nursery, thus rendering them stocky and strong.

A Dwarf Pear Orchard of over 3,000 trees, part of which are

in successful bearing, has furnished much experience of great

value to such as may wish to engage in that interesting de-

partment of fruit culture.

The present Nursery Stocks consist of a large and general as-

sortment of Fruit and Ornamental Trees and Plants, while

special attention is invited to his large stock of Dwarf Pear

Trees, grown with special care, and thoroughly headed back so

as to give them the best possible form for transplanting.

Trees packed in the best manner at moderate charge; Cata-

logues furnished on receipt of stamp. Also, Circular of Ye-

oman's Fruit Bottles. Terms advantageous to the buyer.

T. G. YEOMANS.

Walworth, Wayne Co., N. Y.

Osage Orange for Hedge Fences.

1 and 2 years old, \$3 and \$4 per 1000; \$25 and \$30 per 10,000.

RHUBARB or PIE PLANT, \$5, \$6, and \$8 per 100, accord-

ing to kind—lower by the 1000.

Catalogues of all the extensive departments of these well

known nurseries, gratis—a one cent stamp for postage.

Germantown Nurseries, near Philadelphia.

THOS. MEEHAN, Proprietor.

TO PLANTERS.

PARSONS & Co.

A T

FLUSHING, L. I., N. Y.,

In inviting attention to their stock, which is this season very large and of fine quality and vigorous growth, would remind planters that the soil and climate of Long Island are noted for producing thrifty, well-ripened wood: it is thus, that with the proper cultivation our trees have attained their reputation for hardiness and for uniformly succeeding when they receive the care to which all plants are entitled.

A member of our firm is now sending out from the nurseries of Europe the choice varieties of late introduction, and it continues to be our constant aim to present to admirers of fine fruit and beautiful vegetation, a selection worthy of careful examination.

Among the large variety we cultivate, we have only space to mention of

FRUIT TREES AND PLANTS

APPLE, fine trees, 3 to 5 years old.

PEAR, dwarf, in bearing state, and in large quantity.

PEAR, standard.

CHERRY, dwarf and standard.

PLUM, APRICOT, and NECTARINE.

PEACH, 1 and 2 years.

All the above can be furnished of suitable size and form

for training on walls and for pot culture.

CURRENT, Versailles, Cherry, and other sorts.

MULBERRY, FIG, WALNUT and FILBERT.

GOOSEBERRY, American and English sorts.

BLACKBERRY, New Rochelle by the 1000.

GRAPE VINES of all the foreign sorts, strong and well

grown in large pots, including the fine new kinds.

Our NATIVE GRAPES, embracing Concord, Delaware,

Diana, Logan, &c., &c., are of very thrifty growth,

and priced at moderate rates.

RASPBERRY, STRAWBERRY, RHUBARB, &c., &c.

Prices of Fruit Trees, Plants and Vines by the hundred

and thousand at proportionately reduced rates.

TO OUR

EVERGREENS

We invite special attention. Among them are

NORWAY SPRUCE from 1 to 10 feet, and at low rates

by the quantity.

ARBOR VITAE, American, of many sizes for hedges.

.. .. Siberian, both small and large, and

of very handsome form.

PINES, including Excelsa, Cembra, and others.

JUNIPERS, Irish, Heath-leaved, and others by the

thousand.

RHODODENDRON, both seedling and worked,

YEW, Podocarpus, &c., &c.

All these, and many others, we offer at low rates at

wholesale. Our list of

Deciduous Trees and Shrubs

embraces all that are cultivated for ornament, and of

all the different sizes, whether for

THE GARDEN, THE LAWN, OR THE AVENUE.

THE EXOTIC DEPARTMENT

contained in nine houses, is now especially rich in Or-

chids and other choice Stove Plants, as well as

in the large variety of Green-house Plants.

Purchasers will find our Plants well grown, and priced

at low rates.

ROSES—We cultivate in great variety, and from our

WHEELER, MELICK & CO.,
PROPRIETORS
NEW-YORK STATE AGRICULTURAL WORKS.



[Double Power and combined thresher and winnower, at work.]
 Manufacturers of Endless Chain Railway Horse Powers, and
 Farmers' and Planters' Machinery for Horse Power use, and
 owners of the Patents on, and principal makers of the following
 valuable Machines:

Wheeler's Patent Double Horse Power,
AND
IMPROVED COMBINED THRESHER AND
WINNOWER.

[Shown in the cut.]
WHEELER'S IMPROVED PATENT COMBINED
THRESHER AND WINNOWER, is a model of simplicity
 and compactness, and is made in the most substantial manner,
 so that its durability equals its efficiency and perfection of
 work. Its capacity, under ordinary circumstances, has been
 from 125 to 175 bushels of Wheat, and from 200 to 300
 bushels of oats per day. It works all other kinds of grain
 equally well, and also threshes and cleans Rice, Clover, and
 Timothy Seed. Price, \$245.

Wheeler's Patent Single Horse Power,
AND
OVERSHOT THRESHER WITH VIBRATING SEP-
ARATOR.

Threshes from 75 to 100 bushels of Wheat, or twice as many
 Oats per day without changing horses—by a change nearly
 double the quantity may be threshed. Price, \$125.

Wheeler's Patent Double Horse Power,
AND
OVERSHOT THRESHER WITH VIBRATING SEP-
ARATOR.

Does double the work of the Single Machine, and is adapted to
 the wants of large and medium grain growers, and persons who
 make a business of threshing. Price, \$160.

WHEELER'S NEW FOUR HORSE, OR SIX MULE
HORSE POWER,

Is a recent invention, designed to meet the wants of Southern
 and Western customers. We believe it the simplest and most
 perfect Lever Power made. Price, \$160.

Also, Circular and Cross-Cut Sawing Machines, Clever
 Hullers, Feed Cutters, Horse Rakes, and other
 Farming Machines.

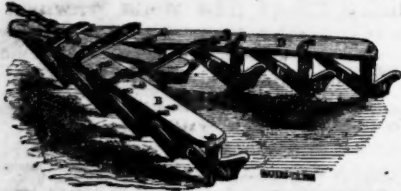
Persons wishing more information, and applying by
 mail, we will forward a Circular containing such details, as
 purchasers mostly want—and can refer to gentlemen having our
 Machines in every State and Territory.

Our firm has been engaged in manufacturing this class of
 Agricultural Machinery 25 years, and have had longer, larger,
 and more extended and successful experience than any other
 house.

All our machines are warranted to give entire satisfaction, or
 may be returned at the expiration of a reasonable time for trial.
 Orders accompanied with satisfactory references, will be
 filled with promptness and fidelity; and Machines, securely
 packed, will be forwarded according to instructions, or by
 cheapest and best routes.

WHEELER, MELICK & CO., Albany, N. Y.

Share's Patent Coultter Harrow,



The best pulverizer of the ground yet invented. For a circular
 with description, and the testimony of practical farmers, who
 have used them, address at No. 45 Fulton-st.,

TREDWELL & PELL, owners of the Patent for
 New-York City and vicinity, New-Jersey, Pennsylvania and
 other States.

SPECIAL NOTICE TO FARMERS,
No. 54 Vesey-st., New-York.

Farmers are most respectfully informed that
MAYHER'S AGRICULTURAL WAREHOUSE AND
SEED STORE

is now located at No. 54 VESSEY STREET, near Washington
 Market, and on the North River side of the City, where may be
 found the LARGEST, BEST, AND MOST COMPLETE ASSORTMENT
 OF AGRICULTURAL IMPLEMENTS, MACHINERY AND SEED EVER
 offered for sale in this city, and which we sell at

LOWER PRICES

than any house in the city. We manufacture all of our own
 Implements and Machines, and purchasers will find it to their
 interest to call on us and see for themselves. Catalogues fur-
 nished on application.

A. F. MAYHER & CO.,
 Agricultural Implement Manufacturers,
 No. 54 Vesey-st., New-York,
 west side Broadway.

"Remember, it is No. 54 VESSEY-ST."

SHEEP'S TOES.

The best article for paring and cutting off Sheep's Toes is
ROWE'S largest size PRUNING SHEARS
 Salesroom 269 Pearl-st., New-York.

THE QUESTION SOLVED.
Cook's Improved Portable
Sugar Evaporator
FOR MAKING SORGHUM & MAPLE SUGAR.

All doubts are dispelled! That Chinese Cane yields true Cane
 Sugar is a settled question. The difficulties in securing its
 granulation have been entirely overcome by the invention of
 Cook's Evaporator. By its peculiar arrangement it throws off
 all scum and feculencies, and secures a deposit of a kind
 of wax, which would otherwise prevent granulation, and
 WHICH HAS YET BEEN REMOVED BY NO OTHER
 PROCESS. Thus in this machine are combined all the requi-
 sites for defeating without chemicals, and evaporating with an
 unparalleled rapidity.

Send in orders early, as multitudes were disappointed by
 waiting too long last year.

PUBLIC OPINION.

"Operates admirably."—*Am. Agriculturist*.
 "By its actual, veritable sugar is produced from the juice of
 the new saccharine plant, with certainty, expedition, and pro-
 fit."—*Horace Greeley, N. Y. Tribune, Feb. 15, 1860.*

"This is a very valuable invention."—*Scientific American*.

"The most successful of its class at the Fairs this season."—*Ohio Cultivator*.

"The working is beautiful, and an entire success."—*Cleve-
 land Plaindealer*.

"It is to the Chinese cane, what the cotton gin is to cotton."—*Middlebury, Vt. Register*.

"A new source of wealth is thus opened for our farmers."—*Fort
 Wayne, Ind., Sentinel*.

"Was in full blast all day, and did its work to every one's sa-
 tisfaction."—*Albany Evening Journal*.

From the Hon. John Sherman.

"I have no hesitation in recommending it as a valuable in-
 vention. The sugar and molasses are both of a superior quality,
 and cheaply and cleanly made." **JOHN SHERMAN.**

From Hon. Thos. H. Ford, Ex-Governor of Ohio.

"I hereby certify that I exhibited samples of sugar made by
 D. M. Cook on his Evaporator at the Patent Office of the United
 States, in February last, and that upon examination and com-
 parison, it was pronounced superior to any other."

THOMAS H. FORD.

"It combines the most valuable points ever developed in the
 manufacture of syrup or sugar."—*Milwaukee Democrat*.

"In its province the 'Excelsior'."—*Chicago Herald*.

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"A more simple, economical, yet philosophical arrangement
 could not be devised for the purpose." *Report Ag. Soc., Addi-
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CANE SEED AT A MODERATE PRICE WILL BE
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All letters pertaining to Cook's Evaporator, or the sale of
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BLYMERS, BATES & DAY, Manufacturers,
 Mansfield, Ohio.

THE DEEP BREAKING UP PLOW.

This Plow turns a furrow TWO FEET DEEP and of
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When desired, the furrow can be deepened another
 foot with my new subsoil Trench Plow, thus turning up
 the soil *Three Feet deep*.

It is the most suitable Plow ever used for preparing the
 ground for Vineyards and Nurseries, or for any other crop
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 ter, and leaves the ground in a finer condition than can
 be done by the spade, and at about one-fourth the expense
 —thus making it a great labor-saving machine.

THE SUBSOIL TRENCH PLOW

Penetrates the soil from one to three feet deep as re-
 quired.

THE DRAIN PLOW

For opening deep ditches for Tile or other drains.

THE ROCK PLOW

Turns out large stones or small rocks from either the
 surface or subsoil.

DEEP TILLERS.

These Plows are made to run from 12 to 20 inches deep
 as required.

THE GIBB'S PATENT CYLINDER PLOW

Is celebrated for its ease of draft and the wide furrow
 it turns.

POLISHED STEEL PLOWS

For Texas, California, and all other parts of the United
 States.

These are most suitable for clay and other adhesive
 soils, as they do not adhere to the mould board. They
 are light and strong, and of all sizes, from small one-
 horse to large four-horse.

All the above plows are new patterns, manufactured
 for this market exclusively by myself. They are remark-
 able for light draft and the perfection of their work.

In addition to the foregoing, I keep upwards of ONE
 HUNDRED AND FIFTY other kinds of Plows.

ALSO ALL OTHER AGRICULTURAL IMPLE-
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HORTICULTURAL IMPLEMENTS—The largest
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FLOWER, FIELD, AND GARDEN SEEDS of all
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GUANO, BONE DUST, POUDRETTE, and various
 other fertilizers,
R. L. ALLEN,
 191 Water-st., New-York.



Buckeye Premium Mower,
WITH FOLDING BAR.
AWARDED FIRST PREMIUM GRAND GOLD
MEDAL BY U. S. AGRICULTURAL SOCIE-
TY, AT THE GREAT SYRACUSE
FIELD TRIAL.

The attention of Farmers is invited to the "Buckeye" for
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 its present reputation, that of:

THE BEST MOWING MACHINE IN THE WORLD.

In addition to several important improvements added the pres-
 ent season. The farmer intending to purchase a Mower will
 find it to his advantage to examine the Buckeye. The demand
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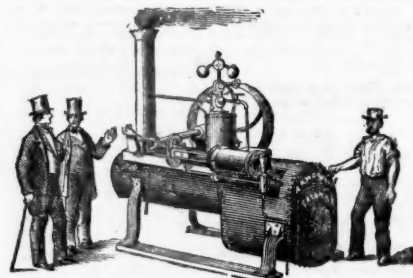
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Farm and Plantation Mill.

AGENCY NO 45 GOLD-ST., N. Y.

The experience of the past year has tested the value of the
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 best entitled to public confidence; that it is bound to supersede
 those now in use, on account of its intrinsic worth.

For hulling Buckwheat it is superior to all other inventions;
 and for grinding middlings, no other mill can compare with it.
 One half the power required to run the ordinary Burr Stone
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Descriptive circulars sent by
J. A. BENNETT, Sole Agent.



A. N. WOOD & Co.,

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PRACTICAL MACHINISTS AND BUILDERS OF
The Celebrated Fuel Saving

Portable Steam Engines,

With Locomotive Boilers. These machines are unsurpassed
 for **ECONOMY OF FUEL**, simplicity and strength; and are
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Machine, and Seed Warehouse.

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The attention of Farmers, Merchants, and all interested, is
 invited to my large and unequalled assortment of Agricultural
 and Horticultural Implements and Machines.—The greatest
 care in the selection of articles I offer for sale, to have them of
 the best and most approved patterns; and that they be made in
 the most substantial manner.

I particularly call attention to my superior Burr Stone and
 Iron Grain Mills, Horse-Powers, Threshers, Mowing and Reap-
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 Stalk Cutters, Presses, Pumps, Brick Machines, Carts and
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FERTILIZERS—Peruvian Guano, Bone Dust, Phosphate of
 Lime, Dried Blood and Wool, Plaster, &c.

Orders solicited for the above, and for **STEAM ENGINES**
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FIELD AND GARDEN SEEDS, from the most reliable grow-
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SUPERPHOSPHATE OF LIME.

BLOOD AND WOOL MANURE.

BONE DUST, LAND PLASTER,
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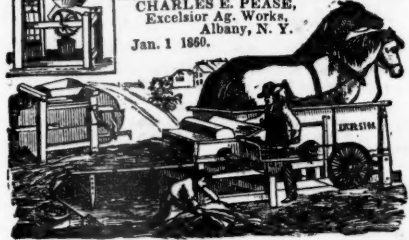
Farmers and Dealers in Agricultural Machines will find it to their interest to patronize this establishment, where they can be supplied with the very best.

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Jan. 1 1860.



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DRAINING TILE in the United States, have on hand, in large or small quantities, for Land Drainage. Round, Sole and Horse Shoe Tile, warranted superior to any made in this country, hard-burned, and over one foot in length.

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Price list sent on application

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Albany, N. Y.

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WETHERSFIELD SEED SOWER.— Described in March number of Agriculturist. Price \$6. For sale by R. L. ALLEN, 191 Water-st., New-York.

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Is manufactured from common salt, and is prepared entirely different from other Saleratus. All the deleterious matter extracted in such a manner as to produce Bread, Biscuit, and all kinds of Cake, without containing a particle of Saleratus when the Bread or Cake is baked; thereby producing wholesome results. Every particle of Saleratus is turned to gas and passes through the Bread or Biscuit while baking; consequently nothing remains but common Salt, Water and Flour. You will readily perceive by the taste of this Saleratus, that it is entirely different from other Saleratus.

It is packed in one pound papers, each wrapper branded "B. T. Babbitt's Best Medicinal Saleratus;" also, picture, twisted loaf of bread, with a glass of effervescing water on the top. When you purchase one paper you should preserve the wrapper, and be particular to get the next exactly like the first—brand as above.

Full directions for making Bread with this Saleratus and Sour Milk or Cream Tartar, will accompany each package; also, directions for making all kinds of Pastry; also, for making Soda Water and Seidlitz Powders.

MAKE YOUR OWN SOAP WITH B. T. BABBITT'S

PURE CONCENTRATED POTASH.

Warranted double the strength of ordinary Potash; put up in cans—1 lb., 2 lbs., 3 lbs., 6 lbs., and 12 lbs.—with full directions for making Hard and Soft Soap. Consumers will find this the cheapest Potash in market.

Manufactured and for sale by
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Brown's Bronchial Troches. COUGHS.

The great and sudden changes of our climate, are fruitful sources of *Pulmonary and Bronchial Affections*. Experience having proved that simple remedies often act speedily and certainly when taken in the early stage of disease, recourse should at once be had to "Brown's Bronchial Troches," or Lozenges, let the Cold, Cough or Irritation of the Throat be ever so slight, as by this precaution a more serious attack may be effectually warded off.

"That trouble in my Throat (for which the 'Troches' is a specific) having made me often a mere whisperer."

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"I recommend their use to PUBLIC SPEAKERS."

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"Have proved extremely serviceable for HOARSENESS."

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"Almost instant relief in the distressing labor of breathing peculiar to ASTHMA."

REV. A. C. EGGLESTON.

"Contain no Opium or anything injurious."

DR. A. A. HAYES,

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"A simple and pleasant combination for COUGHS, &c."

DR. G. F. BIGELOW,

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"Beneficial in BRONCHITIS."

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"Beneficial when compelled to speak, suffering from Cold."

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"I heartily unite in the above commendation."

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"EFFECTUAL in removing Hoarseness and Irritation of the Throat, so common with SPEAKERS and SINGERS."

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Cures Cough, Cold, Hoarseness and Influenza.

Cures any Irritation or Soreness of the Throat.

Relieves the Hacking Cough in Consumption.

Relieves Bronchitis, Asthma and Catarrh.

Clears and gives strength to the voice of SINGERS.

Indispensable to PUBLIC SPEAKERS.

Soothing and simple, CHILDREN can use them.

As they assist Expectoration and relieve Hoarseness.

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THE READY FAMILY SOAP MAKER.

Cost of one pound Saponifier (in iron box) 25c.

4½ pounds of refuse kitchen grease, boiled about four hours, with the Saponifier, which would ordinarily be thrown away, or sold at one cent per pound, say..... 20c.

45c.

Forty-five cents, therefore, is the whole cost of fifteen gallons of very superior soft soap, a perfect jelly.

TRY IT!!!

It will clean type to perfection, and where a strong lye is wanted for any purpose, it will be found valuable.

To be had of all respectable druggists and storekeepers.

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The Original, Genuine, and Patented Article only made by

THE PENNA SALT MANUFACTURING COMPANY.

Trade supplied and Circulars sent by addressing

LEWIS, JAMES & CO., Agents,

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SAPONIFIER,

OR

CONCENTRATED POTASH.

A new article for making Soap, warranted to make Soap without Lime, and with but little trouble. One pound will make 12 gallons of good strong Soft Soap. Manufactured and put up in 1, 2, and 4 lb. cans, (in small lumps,) at the CHALLENGER CHEMICAL WORKS, New-York.

E. R. DURKEE & CO., Proprietors, 181 Pearl-st., N.Y.

To Farmers and Gardeners.

The subscribers offer for sale 60,000 barrels of poudrette, made by the Lodi Manufacturing Company, in lots to suit purchasers. This article is in the twentieth year of its introduction into this country, and has outlived fertilizers of every other description, for the following reasons:—

1st. It is made from the night soil of the City of New-York, by the L. M. Co., who have a capital of over \$100,000 invested in the business, which is at risk should they make a bad article.

2d. For corn and vegetables it is the cheapest, newest, and handiest manure in the world, it can be placed in direct contact with the seed, forces and ripens vegetation two weeks earlier, prevents the cut worm, doubles the crop, and is without disagreeable odor. Three dollars worth of two barrels is all sufficient to manure an acre of corn in the hill.

Price—1 bbl. \$2—2 bbls. 3.50—5 bbls. \$8, and over 6 barrels \$1.50 per barrel, delivered free of cartage, to vessel or railroad in New-York City.

A pamphlet containing every information, and certificates from farmers all over the United States, who have used it from two to seventeen years, will be sent free to any one applying for the same. GRIFFING BROTHERS & CO., North River Agricultural Warehouse, 60 Courtland-st., N. Y.

GUANO.

We would call the attention of Guano Dealers, Planters, and Farmers to the article which we have on hand and for sale at **FORTY PER CENT LESS THAN PERUVIAN GUANO** and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by WM. H. WEBB, of New-York, from Jarvis & Baker's Islands, in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain (as will be seen by our circulars) a large percentage of Bone Phosphate of Lime and Phosphoric Acid, and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant by coming in contact with it, as is the case with some other fertilizers; retaining a great degree of moisture, it causes the plant to grow in a healthy condition, and as experience has proved, free of insects. For orders in any quantity, (which will be promptly attended to,) or pamphlets containing full particulars of analyses and tests of farmers, apply to JOHN B. SARDY, Agent, No. 58 South-st., corner of Wall-st., New-York.

To Dealers in and Consumers of Fertilizers.

BEWARE of whom you purchase your FERTILIZERS. Second hand Guano Bags, with the Peruvian Government Stamp, are in demand, and are bringing extremely high prices, for the purpose of mixing Peruvian with worthless guano, and selling it for a pure article. We purchase our Guano direct from the Peruvian Government Agents, and can not therefore be imposed upon. Dealers and consumers supplied with the pure No. 1 Peruvian Guano at the lowest cash prices by GRIFFING BROTHERS & CO., 60 Courtland-st., New-York.

To Horse Owners.

WELLING'S WORM, DIURETIC AND CONDITION POWDERS, made after veterinary physicians' recipes, are very efficacious when given to horses suffering from inflammation of the lungs, liver, stomach, struvel, moulting, or when hide-bound. Testimonials from farmers, city railroad men, and other owners of horses, with direct ones for use, may be had on application to SAMUEL G. WELLING, Apothecary, New Rochelle, Westchester Co., N. Y. The retail supplied at \$4 per dozen large boxes of 1 doz. doses each. Trade price 50c. per box.

Dried Blood and Wool Manure.

A new and valuable Fertilizer, containing a large proportion of nitrogenous matter. Bone Dust—Fine ground Bone Sawings and turnings and coarse bone for granular—warranted a pure article. R. L. ALLEN, New-York Agricultural Warehouse and Seed-store, 191 Water-st., New-York.

No. 1 Peruvian Guano. SUPER-PHOSPHATE OF LIME, BONE DUST.

For sale in quantities to suit purchasers at the lowest market price by A. LONGFET, No. 31 Cliff-st., New-York.

Bone Manure.

Pure ground bone for fertilizing purposes, superior to any in market. For sale by the manufacturers. GEO. H. MOLLER & CO., 107 Wall-st., New-York. Samples sent by express.

KENTUCKY HUNTER FOR SALE.

A superb entire Colt, 4 years old, fine next, 15 hands, bright bay, beautiful in symmetry, and graceful in style of action. The above colt will stand, until sold, at the stable of the owner. C. C. PHELPS, Vernon, Oneida Co., N. Y.

FOR SALE TWO SUPERIOR BLACK HAWK STALLIONS, six and seven years old. Very stylish, fast, sound, kind, and sure foot getters, clear jet black ALFRED M. TREDWELL, Madison, Morris Co., N. J.

For Sale.

FIVE very fine well bred fine trotting Black Hawk stallions from 3 to 8 years old; three fillies, same breed. Also thoroughbred North Devon Bulls and Cows, by LINSLEY BROS., West Meriden, Conn.

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AND AYRSHIRE BULLS.** I have some fine young animals bred from imported Parents. Also Heifers. For sale reasonable. Address ALFRED M. TREDWELL, No. 45 Fulton-st., New-York City.

**Berkshire Pigs from imported stock for
sale, \$10 a pair, delivered in New-York.** W. H. CLAY
Southside P. O., Staten Island, 21 Wall-st., New-York.

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EXTRA PREMIUMS.

AN EXCELLENT CHANCE TO OBTAIN CHOICE SEEDS FOR THIS SPRING, WITHOUT EXPENSE.

[The season for work is coming on, and our friends who have greatly favored us in sending forward new names, are soon to be actively engaged in their field and garden labors. Those who are making up lists for the premiums on page 122, will have time to complete them. But to reward all others who will, during the next few weeks, take a little time and trouble to talk over the merits of the *Agriculturist* with their neighbors, and obtain their subscriptions, we offer some extra seed premiums. To avoid confusion we use a number for each premium which has not been applied to any previous premium.]

N. B.—Of course only one of these or previous premiums can be given for the same name.

Premium 22.—To any person sending in new subscribers at \$1 each, for the present volume of the *Agriculturist*, we will present as a premium for each new name, 15 parcels of seeds from the list on page 122. If to be sent by mail, we will ourselves pay postage to the amount of twelve cents. If packages are chosen on which the postage exceeds 12 cents for the whole, the recipient will need to provide for the excess of postage. We will give the 15 parcels of seeds and pay 12 cents of the postage for each name. **N. B.**—If the new names are in clubs, new or old, and at club prices, we will give the 15 parcels of seed for each, but can not afford to pay the postage. [The new subscriber can also have the usual 5 parcels of seeds, on furnishing the stamped envelopes.]

Premium 23.—To any person now sending a new subscriber, we will present a package containing from 400 to 500 seeds of the **New Rochelle Blackberry**, with instructions for cultivating. The seed will be sent post-paid by us. This will be a valuable premium, in localities where it is not practicable to obtain the plants. We have obtained a fine supply of pure fresh seed, at large cost. We are not aware that there is any other pure seed in the country.

Premium 24.—To any person now sending in a new subscriber we will present a post-paid parcel containing over 2000 seeds of the **Dwarf Broom Corn**, described on page 104, of this paper.

Premium 25.—We have a limited supply of seeds of some new and promising plants, recently forwarded to us by our agents in Europe. These we are putting up in papers, and making parcels containing one paper of each kind. One of these parcels will be presented post-paid to any person now sending in a new subscriber and \$1. As these seeds are of great value, and will produce the first seed raised in this country. There will be in each parcel some of the following seeds:

- 127—New Red Turnip Beet.
- 128—Perfection Cabbage, described, "fine, early, large."
- 129—Worcester's Improved Flat Dutch Cabbage, described as "not so large as the old variety, but more adapted for domestic purposes."
- 130—Great Eastern Pea.
- 131—Custard Marrow Squash.
- 132—Moss Curled Parsley.
- 133—Blackstone's Hybrid Turnip.
- 134—Shepherd's Hardy Early Cauliflower.
- 135—New Pink Celery.
- 136—Dwarf Crimson Nasturtium.

Additional papers of two or three other varieties of new seeds will be added to each parcel of the above. We have a variety to select from, but not enough of any one kind to say what extra sorts will be sent to any individual.

Premium 26—For Amateurs.—By special favor, and at large expense, we have obtained a small quantity of the seed of three hardy annuals which are now creating some interest in England, viz.: *Clarkia pulcherrima*; *Schizanthus grandiflorus oculus*, and *Heliophila carulea stricta*. Those who have access to the English illustrated Horticultural Magazines probably know the beauty of these plants. A small parcel of each of these seeds will be presented post-paid to the first fifty or sixty persons sending us a new subscriber at \$1 a year.

Publisher's Special Notices.

COMPLAINTS—DELAYED PREMIUMS—SEEDS BY EXPRESS—DEFECTIVE ENVELOPES, ETC.

A few complaints have reached us, which have been due to oversight on the part of subscribers. We gladly do all we can to rectify all mistakes if made by ourselves—and those made by others when in our power.

1. Some persons entitled to premiums, have not received them as promptly as desired, because they did not send duplicate lists of names at first, to be referred to in deciding upon their title to the premiums asked for. We have, therefore, had to wait until the names were posted from the Entry Books, and indexed for reference.

2. All seeds asked for by mail or express, have been dispatched, except as indicated in the next note. Any error will be rectified, or any loss by mail or otherwise will be replaced when we have the seeds. See page 122.

3. We have a drawer full of seed envelopes which were not properly prepared, through error on the part of the sender. Some have no address, or but part of address upon them. Others have the address but no numbers to indicate what seeds are wanted. If the following parties will indicate from our present seed list (page 122) what seeds they desire, we will forward them promptly in the envelopes now waiting: D. D. Lake, Pa.; J. Annable, R. I.; D. B. Higgins, Del.; E. M. Watson, Miss.; J. Foster, Va.; P. Terry, L. I.; W. J. Morgan, Ct.; A. Schleiser, Pa.; R. A. Baird, Mo.; B. Boydston, Pa.; E. R. Burlingame, Ct.; J. G. McMurray, Ind.; H. Erke, Ill.; H. Schroten, Wis.; F. Eberle, Ark.; H. Young, Cal.; D. S. Johnston, Geo.; C. E. Dubois, Wis.; H. Parker, N. H. (no P. O.). All seed envelopes are sent to our country seed rooms as soon as received, to be filled and mailed there; and they should always be complete in themselves, with seed numbers all on them, and not on a separate slip of paper, or in a letter.

4. Several persons at a distance have asked for small parcels of seed by express, when this mode of conveyance would cost more than by mail. In several such cases we have sent them by mail and paid postage, trusting that those who get them thus, will refund the postage, or otherwise acknowledge the compliment, say by forwarding new subscribers.

Thermometer at 7 A. M., New-York.

[We purpose to present hereafter, a daily report of the temperature at 7 o'clock A. M. The observations are carefully made upon a standard Thermometer (Fahrenheit, s indicates snow; r rain.)]

JANUARY, 1860.

1..... 8°	8..... 36	15..... 34	22..... 35	28..... 32
2..... 7	9..... 33	16..... 34	23..... 37	30..... 38
3..... 12	10..... 36	17..... 34	24..... 32	31..... 41s
4..... 34s	11..... 35	18..... 29	25..... 46	
5..... 13	12..... 32s	19..... 32	26..... 34s	893
6..... 12	13..... 18	20..... 30	27..... 23	Average 29
7..... 20r	14..... 20r	21..... 38	28..... 24	

FEBRUARY.

1..... 10s	7..... 40	13..... 30r	19..... 19	25..... 28s
2..... 5	8..... 30	14..... 41	20..... 18	26..... 28
3..... 8	9..... 29	15..... 26	21..... 30	27..... 33
4..... 23s	10..... 22	16..... 28s	22..... 35r	28..... 41
5..... 22	11..... 16s	17..... 12	23..... 49	29..... 36
6..... 42r	12..... 23	18..... 18s	24..... 41	Average 27

MARCH.

1..... 47r	4..... 46	7..... 38r	10..... 31	13..... 31
2..... 50	5..... 34	8..... 38r	11..... 31	14..... 34
3..... 39r	6..... 44	9..... 34s	12..... 37r	15..... 33

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